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IPUTERIZED INVENTORY CONTROL . . . . . p. 29

October 6, 1969

RAILWAY AGE

THE TRANSPORTATION WEEKLY

TRANSIT

NOW FOR TOMORROW

MTA Administrator Carlos Villarreal explores:

THE FEDERAL ROLE IN MEETING PRESENT— AND FUTURE— NEEDS

p. 17

P&MM

Penn Central's Malcolm Richards describes:

THE CHANGING ROLE OF PURCHASING/ MATERIALS MANAGEMENT

p. 28A

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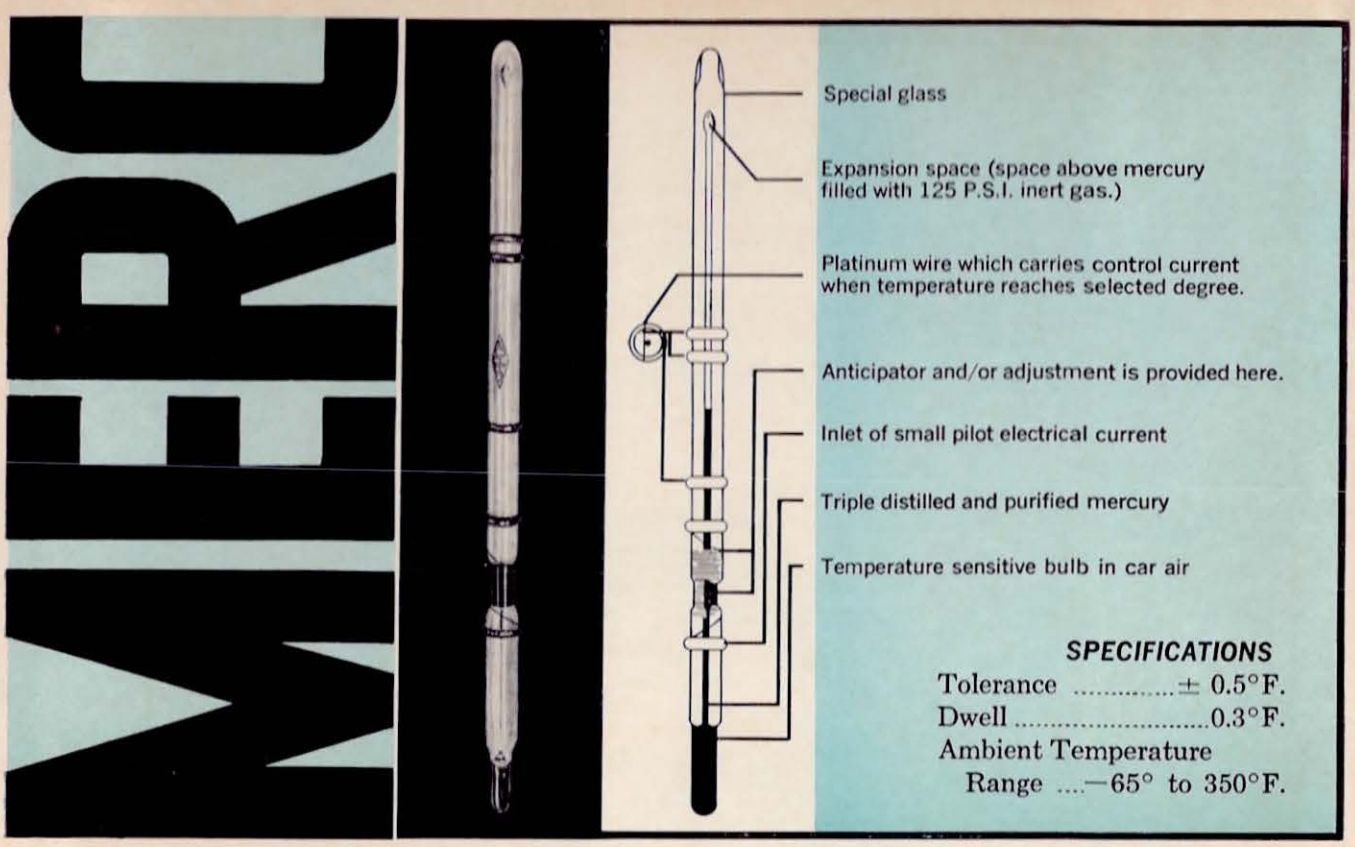
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RAILWAY AGE

October 6, 1969 • Vol. 167, No. 13

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. . . AND COMING NEXT WEEK

Southern Bridges a Crisis: Hurricane Camille dealt the Southern Railway a crushing blow as it dumped 27 inches of rain on the road's Virginia main line Aug. 19-20. Three weeks later the line was back in business. How the Southern did it is described in Washington Editor Frank Malone's report in the Oct. 13 issue. Also: The Railway Systems and Management Association explores world-wide track problems.

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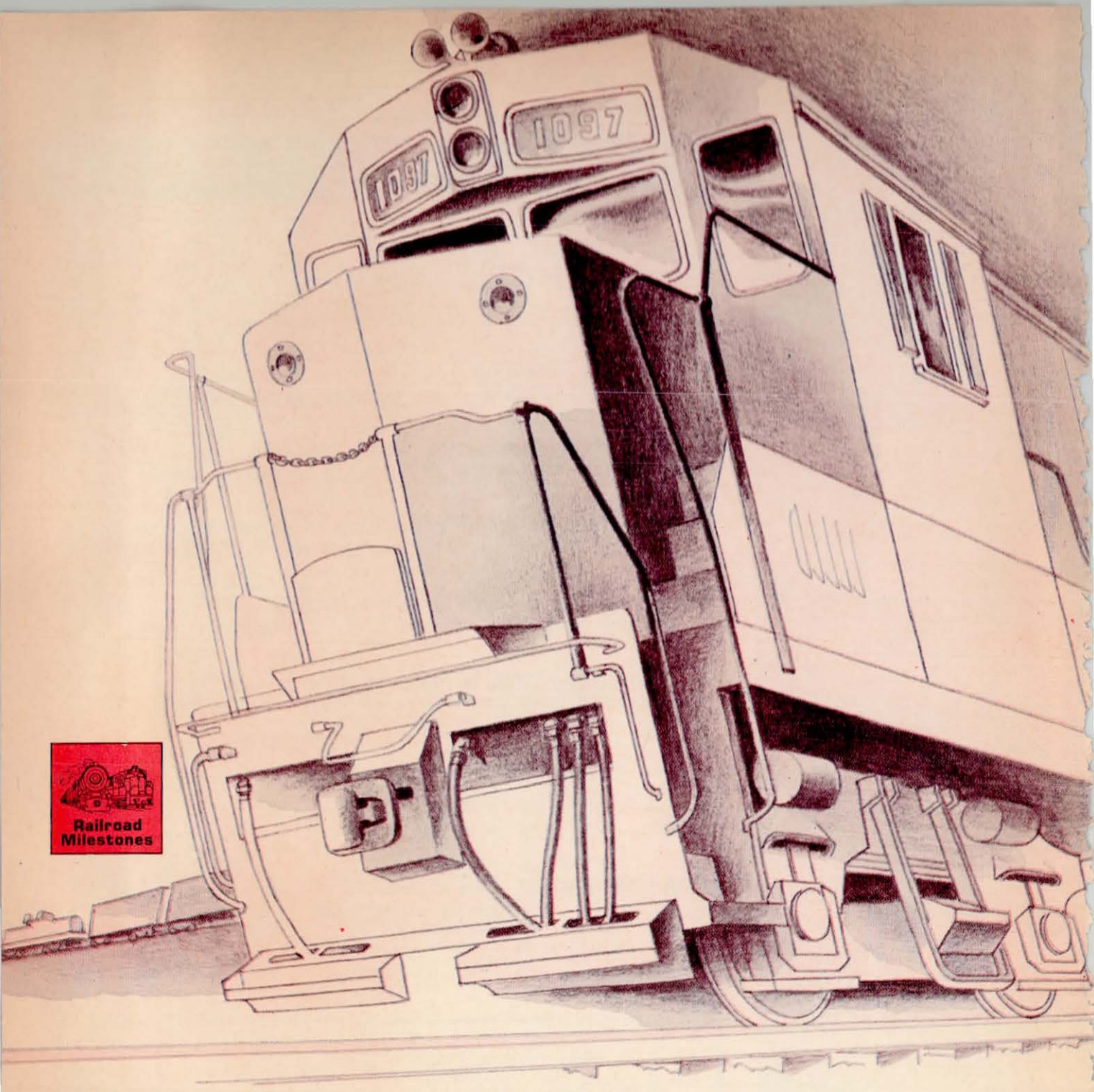

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High among the factors contributing to the amazing progress of American railroads was the changeover from steam to diesel locomotives.

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SHORT AND SIGNIFICANT

LFM-Atchison will supply BART trucks

LFM-Atchison Division of Rockwell Manufacturing Co. will supply trucks for the Bay Area Rapid Transit cars. The selection of LFM-Atchison was announced by Westinghouse Electric, holder of a car-equipment contract from the Rohr Corp., prime contractor for the BART cars. The multi-million-dollar truck order is the largest ever received by LFM-Atchison. The Rockwell truck features a new suspension concept developed specifically for BART's operating requirements as the result of a development and test program conducted by Rockwell at BART's test track near Concord, Calif., from 1966 through 1968. The new Rockwell suspension uses four air springs per truck instead of two, eliminates the conventional truck bolster, and permits the carbody to be partially suspended on air columns, at the air spring locations. The simplified over-all truck design includes the Rockwell equalization-tram feature, permits direct load paths from the carbody, and is said to have the lowest weight ever achieved for a cast steel truck. Rockwell will furnish complete truck assemblies to Westinghouse. Axle assemblies will be supplied to Rockwell by the Standard Steel Division of BLH, using tubular axles and aluminum centered wheels.

Revenues, earnings increase for UP Corporation

The new Union Pacific Corporation, in its initial earnings statement issued last week, reported an increase in gross revenues and sales and in earnings per common share for both the third quarter and the first nine months of 1969 compared with the corresponding 1968 period. Gross revenues and sales rose to $503.5 million in the first nine months, an increase of $34.6 million.

Perlman moving to the Frisco? A rumor denied

With the change at the top in Penn Central management—Paul A. Gorman moved in as president, Alfred E. Perlman shifted to vice chairman—the rumors weren't long in getting started. Perlman, it was said, wouldn't stay with PC. And when he moved, one national business publication reported, it would be to Frisco. The rumor sounded good. Frisco is a railroad which believes strongly that its No. 1 business is running a railroad and emphasizing quality in operation. Perlman is a top-flight executive whose roots are sunk deeply in railroad operations. But, last week, Frisco moved to still the rumors. Said Chairman J. E. Gilliland: "While we regard Mr. Perlman as one of the nation's outstanding railroad men, there are no facts to support a rumor that he, or anyone else, is joining Frisco's top management team."

EL retires $11-million bond issue

For the first time in recent history, the Erie Lackawanna last week retired a major bond issue. The amount involved was $11 million. In a brief ceremony at New York's First National Bank, EL Secretary-Treasurer Milford Adams presented a check to corporate trust officials retiring Erie Railroad 6% 1969 First Consolidated Mortgage Bonds Series E.

New PC holding company to buy oil corporations

The new Penn Central Company—the holding company structure which was approved by the stockholders last May—was activated last week. The railroad is now officially known as the Penn Central Transportation Company. Stuart T. Saunders, chairman, announced that "This action means that we can implement our plans for further diversification of our business in order to strengthen both our earning power and gross potential." In pursuit of that goal, PC has announced the planned acquisition of Southwestern Oil & Refining Co. in Corpus Christi, Texas, and Royal Petroleum Corp. in New York. They had a combined gross revenue of approximately $90 million in 1968. The two companies are privately owned, operate under a single management, and have identical stockholders.

MONDAY MORNING REPORT

FROM FRA: THREE ESCAPE ROUTES

By Jan. 1, 1970, the Federal Railroad Administration will have its own recommendations for preventing passenger-train service from being cut off at the pass. Right now, FRA is studying three possible escape routes. None of them is perfect, from FRA's point of view. But one of them is likely to get the official stamp within three months.

NO. 1: A JOINT LOCAL-FEDERAL COMMITMENT

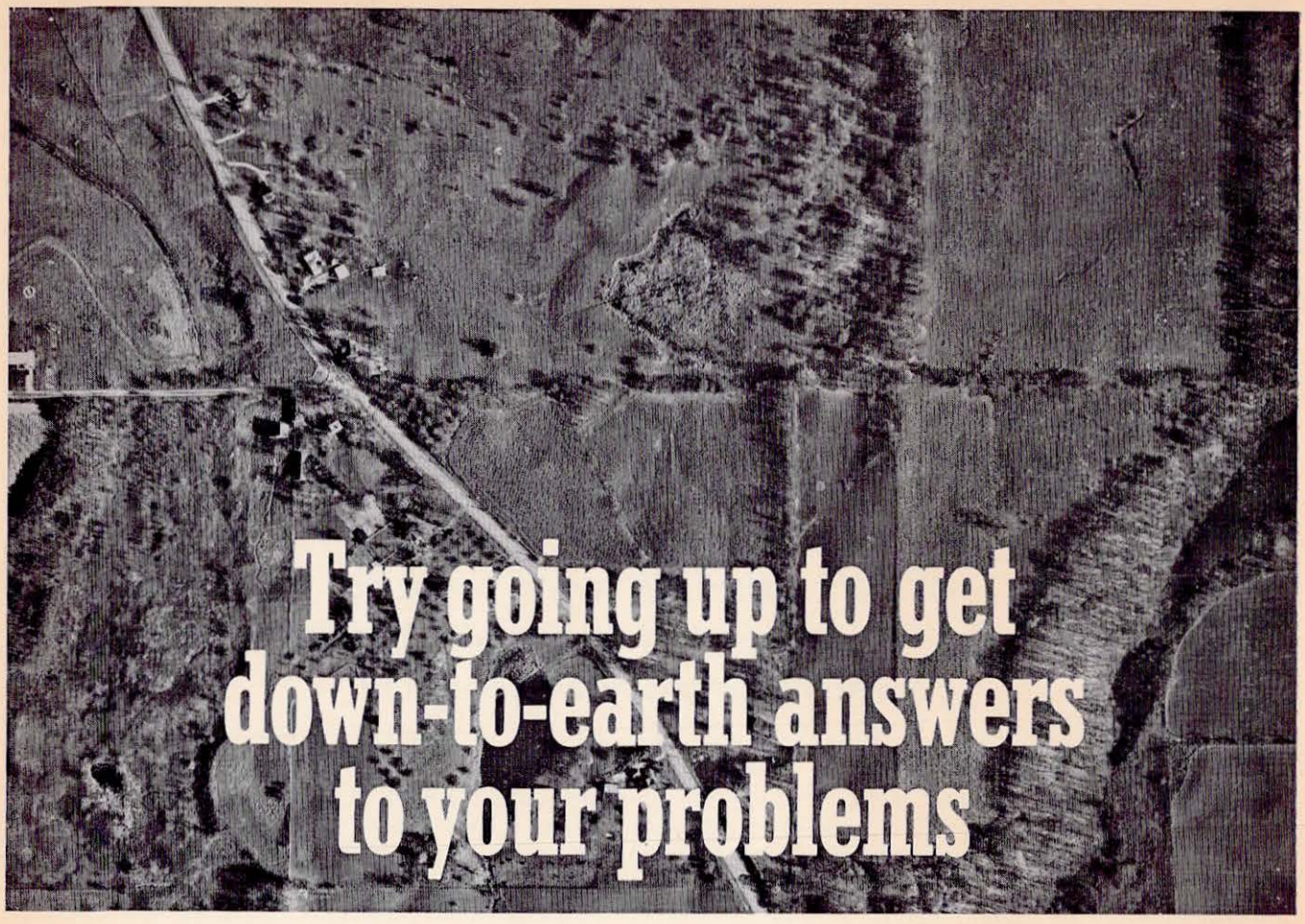
One way out, FRA Administrator Reginald N. Whitman told the Senate Commerce surface transportation subcommittee, would be a local-federal commitment. The federal government would provide capital grants for such heavy items as new equipment and track and station upgrading. The local agency would provide necessary operating subsidies. Such a plan, it is believed, would encourage local governments to define "essential service" very carefully since they would be picking up part of the tab. A drawback, in FRA's view, would be that this plan would preserve only those routes with a local financial sponsor.

NO. 2: A PRIVATE CORPORATION

A second option would be a public corporation which would provide service in selected high-density routes for at least a three-year period. FRA calls this corporation Railpax. Stock would be owned by railroads and by the public. Railpax routes would be free of ICC regulation. Any money-losing route could be abandoned by Railpax in the absence of local support. The railroad freed of a deficit operation would pay a levy to Railpax equal to 50% of its annual avoidable-cost savings. Advantage: No federal funds required. Drawback: Loss of regulatory control.

NO. 3: FEDERAL CAPITAL SUBSIDIES

The third program under consideration would provide federal grants for rolling stock, and initial roadbed and station improvements. The only condition would be the otherwise profitable operation of the route or the availability of state or local subsidies to cover operating deficits. Advantage: Financial relief to railroads. Drawback: Federal funds would be needed. FRA is also, said Whitman, studying federal subsidy of operating deficits. But he wants no action taken until the DOT agency has come up with its own final recommendations: "We need the additional time to define more precisely the question of need in terms of routes, priorities, and costs, and assess the implications for other modes of transportation." At this point, FRA's only firm conclusion is that "any requirement for continued service lies essentially in a number of short haul, high-density corridors; plus perhaps a skeletal long distance service."



Try going up to get down-to-earth answers to your problems

An aerial photograph is a lot more than just an unusual way to look at a landscape. It is the very valuable result of a mature, technical process which is finding more and more use every day as a tool for business. The way to put this tool to work is photointerpretation —the ability to pull amazing amounts of accurate data from aerial photos.

Photointerpretation can be used in many different degrees of sophistication, all profitably. Agronomists can detect blighted crops with color infrared photos long before the damage is visible to the naked eye. Geologists, using aerial color photos, can supply extremely accurate rock-formation data to road and rail builders.

Foresters who have been using black-and-white aerial photographs for years, now find even more data simply by using color and color infrared aerial photos. They not only pick out the kinds of trees they want, but can accurately estimate the volume of board feet they'll get from the trees.

Aerial photography has many other uses as well. City planners really see all of their city, often for the first time, at a glance. Oil companies see where to drill—exactly. Strip miners calculate exact tonnage removed without weighing anything. Utility companies inspect extensive rights-of-way yet never leave the office...the list goes on and on.

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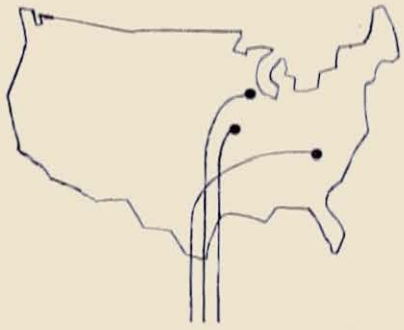

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The Missouri Pacific Railroad made a cost study comparing performance and life of various insulated joints in their track. The longer life of the 3M joint, and the ease of installation made it less expensive in the long run over any other joint regardless of the initial cost. Such cost effectiveness coupled with the proven electrical and structural reliability prompted MoPac to standardize on the 3M joint for new installations in main tracks and at other locations where renewal was required more than once a year.

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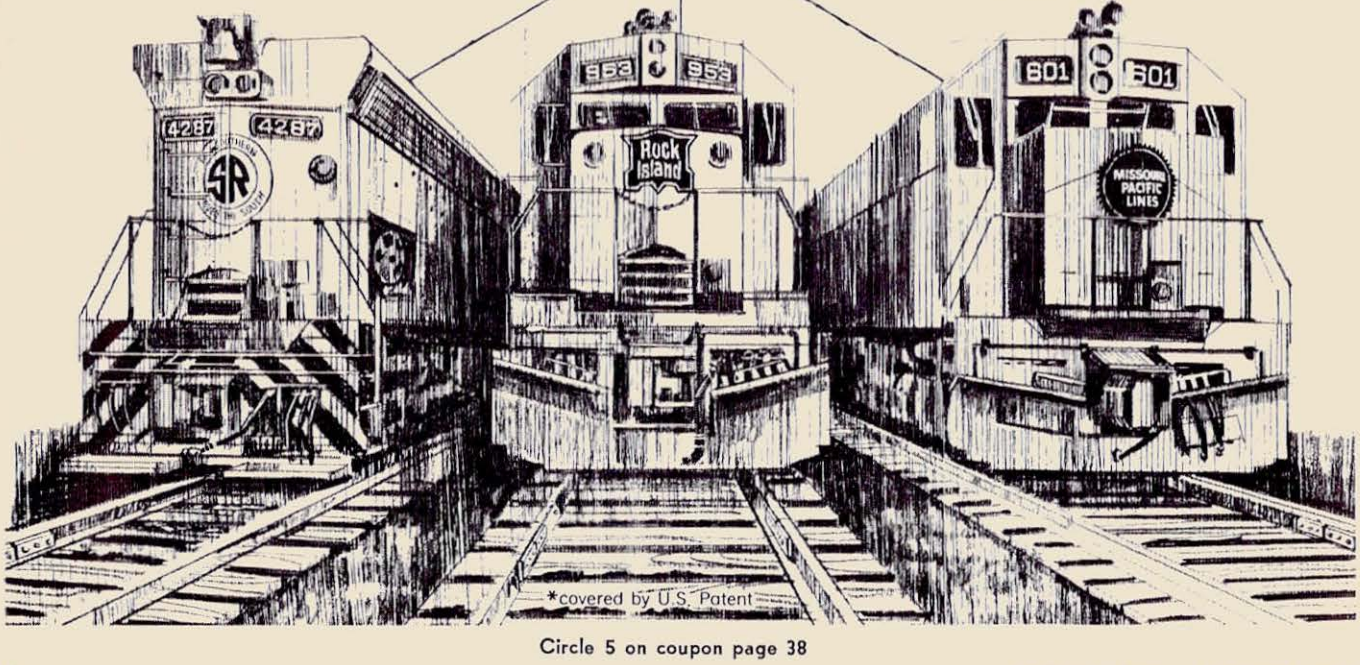

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RAILWAY AGE
THE TRANSPORTATION WEEKLY
October 6, 1969

WEEK AT A GLANCE

Shopcraft strike: Hot potato for the Administration?

The pace of events could only be described as "deliberate" last week, as four shopcraft unions, the nation's railroads and the Nixon Administration marched toward a possible confrontation—and a crippling railroad strike. By the National Mediation Board's reckoning, the dispute is of such proportions as to justify creation of an emergency board. But the Administration was moving slowly and cautiously in its first major involvement in a labor problem. Labor Secretary George P. Schultz was talking with both the shopcrafts and the carriers. At midweek, a Labor Department spokesman said he hadn't decided what action to recommend to the President. Meanwhile, the railroads were preparing their own defenses. A selective strike in this national wage case, an industry spokesman warned, would be followed by an industry-wide shutdown. Railroads were preparing to post the notices involved—railroads, that is, except Penn Central, which said it would not shut down unless it was forced to.

Metroliner service will be doubled

Penn Central plans to increase Metroliner service between New York and Washington from three to six round trips daily on Oct. 26, PC Chairman Stuart T. Saunders told a Senate Commerce subcommittee during passenger-train hearings in Washington. PC expects to be running nine round trips daily before the end of the year, said Saunders. Urging greater Federal assistance for rail transportation in the Northeast Corridor, Saunders commented that the Penn Central has so far invested more than $50 million in the Metroliner program—five times as much as the Federal government.

Union Tank opens 5,000-car-capacity plant in Indiana

A $20-million production facility, capable of ultimately producing 5,000 tank cars a year, was opened recently in East Chicago, Ind., by Union Tank Car Co., a subsidiary of Trans Union Corp. The new five-building complex, described by Robert D. McEvers, vice president and general manager, as "the most modern and efficient in the world for fabricating tank cars," has a total of 650,000 square feet of manufacturing space. Housed in the new facility is the world's largest cold forming head press, plus numerous custom-built and automated production machines. In photo, McEvers, flanked by UT executives R. W. Thornburg (left) and Jack Kruizenga, is shown observing the ribbon-cutting performance of a former Miss Illinois, Beverly Lacek, as the new plant's first tank car was readied for shipment. American Oil Co. received the first cars.

GUS WELTY

LINES ON LABOR

RUSSIAN ROULETTE is a gamble. What the ex-Brotherhood of Locomotive Firemen & Enginemen proposes is more like suicide. It's that simple—or, at least, it should be.

BY AN OVERWHELMING VOTE, ex-BLF&E general chairmen have turned down a chance at compromise on the whole fireman-off/fireman-on issue. By an overwhelming vote, these men have determined that the fireman dispute will once again go to white heat. By an overwhelming vote, these men—whose union is now part of the United Transportation Union—have decided that firemen's jobs must be restored, and that the industry's manning practices must be returned to a condition pre-dating the firemen-off award of Arbitration Board 282.

FORD DOESN'T PRODUCE an Edsel any more. Railroads don't use steam locomotives. Buggy-whip sales have slipped considerably. But the men who govern the BLF&E part of UTU won't concede that the day of the fireman is done.

IN QUIET TALKS, the railroads and the UTU seemed to be nearing an agreement on the fireman question. It was an ill-kept secret, that a so-called combination job would be created—not a head brakeman and not a fireman, but a head-end man who would handle the duties of the second man in the locomotive cab and, presumably, train for the job of engineer. UTU broke off the talks, however, and rejected arbitration. Now, UTU has asked the National Mediation Board to close its file on the fireman-manning case. The clock starts ticking, from the day the NMB lets go of the dispute. In 30 days, the alarm could go off.

THERE IS A SUSPICION that UTU, in this instance, is a house divided against itself. There is a suspicion that a vote of *all* UTU general chairmen would have produced a mandate for settlement. But, under terms of the union merger agreement, decisions on pre-merger disputes are handled by that segment of UTU which is involved.

THE IMPOSSIBLE DREAM is just that. The ex-BLF&E people, perhaps, have to be admired for their single-minded purpose. They have a cause, and come high water or other things, that cause will be pursued. But what can possibly be gained? What is the purpose of the charade? Who's calling the shots, and why? And finally: How much will UTU itself suffer from this new action by the firemen, which is totally out of keeping with the image UTU wants to present?

IRT will continue to push for transit trust fund

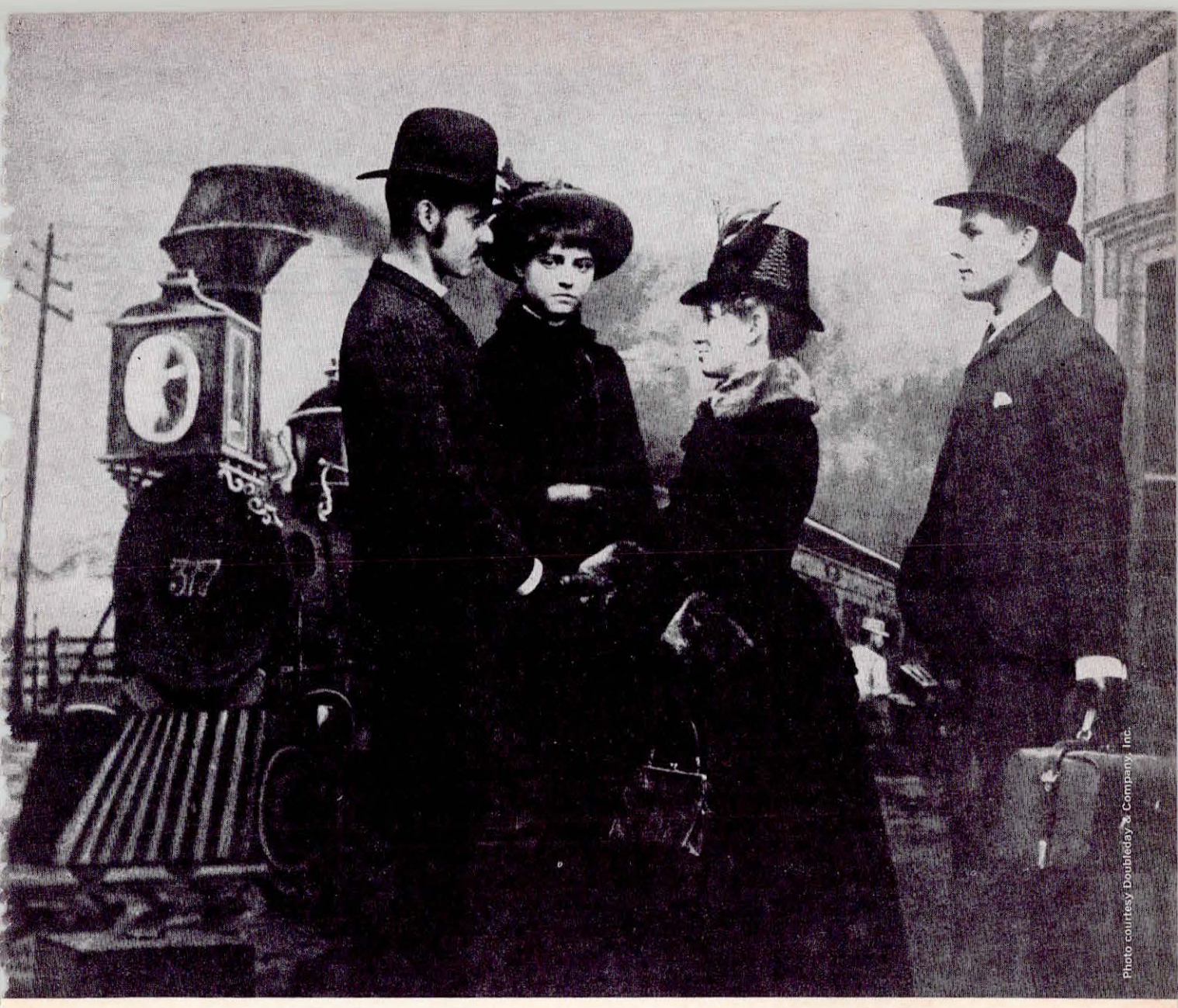
The Institute for Rapid Transit still favors the trust-fund approach to federal transit aid, which President Nixon rejected. But while IRT will continue to press for a trust fund, it is willing to support the President's alternative plan if existing provisions for long-term obligation of funds are strengthened. That is the gist of a statement issued last week. IRT's position is essentially that which has been adopted by other interested groups (see "Transit strategists will try to strengthen Nixon bills," RA, Sept. 1, p. 28).

The text of IRT's statement, as released Oct. 1 by Dr. William Ronan, the Institute's chairman:

"The Institute for Rapid Transit is on record in favor of vastly increased federal assistance for urban transportation projects. In addition, the IRT strongly endorsed the establishment of a trust fund similar to the highway trust fund, to assure the sufficiency of funds for the continuing support of the capital grant program.

"The Secretary of Transportation endorsed the trust fund concept and called for a $10 billion program over a 12-year period to aid urban transportation. The bill introduced by the Administration does not establish a trust fund, and while it calls for a $10-billion program over 12 years, it actually spells out only a five-year program of $3.1 billion by 'contract authorization' and leaves to future Congresses its extension beyond five years. Even the $3.1 billion, five-year contract authority funds are not available at the outset for obligation. Thus major long-time commitments cannot be made for major new transit systems or major upgrading of existing systems that require years to accomplish. The effect would be a year-by-year approach to an industry that desperately needs long-term financing.

"The IRT has urged and still believes that a trust fund ($10 billion over 10 years) is the most logical vehicle for providing a long-term commitment to transit financing. However, if the provisions for 'contract authority' as proposed in the Administration's bill are strengthened so as to offer real guarantees on the future availability of grant funds and to provide for the advance commitment of such funds before the dates authorized for the expenditure of such funds, the IRT would consider support of such legislation."



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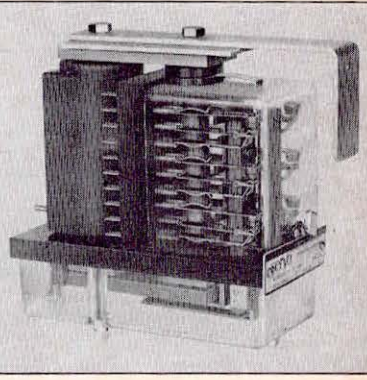

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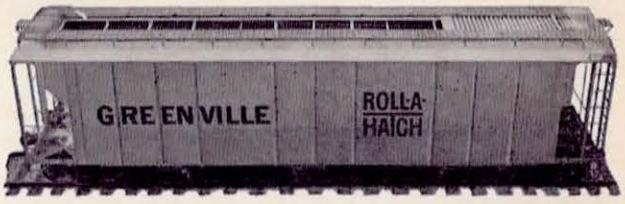

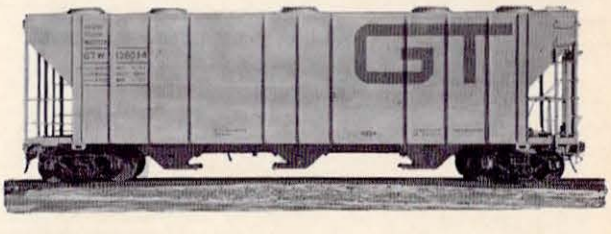

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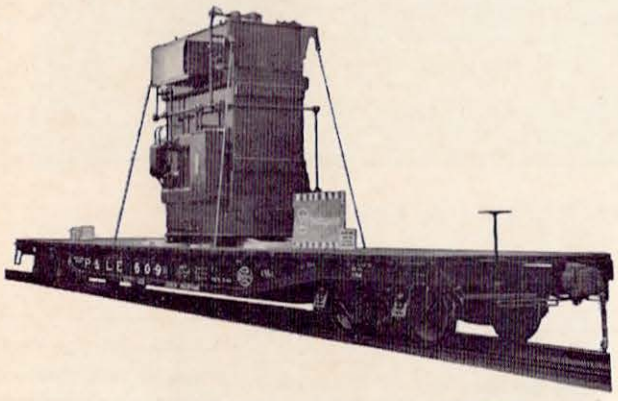
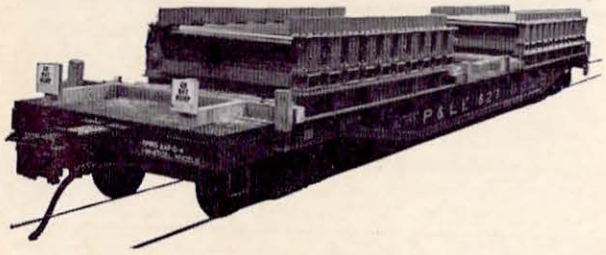
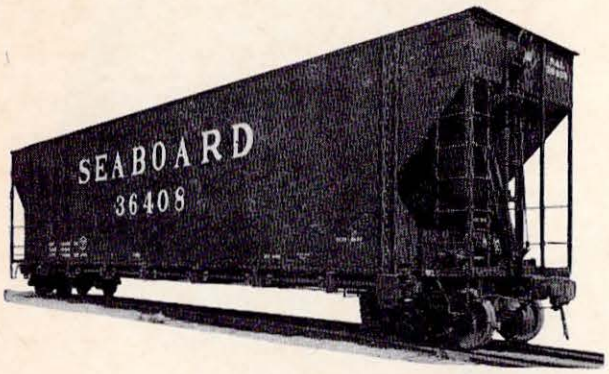
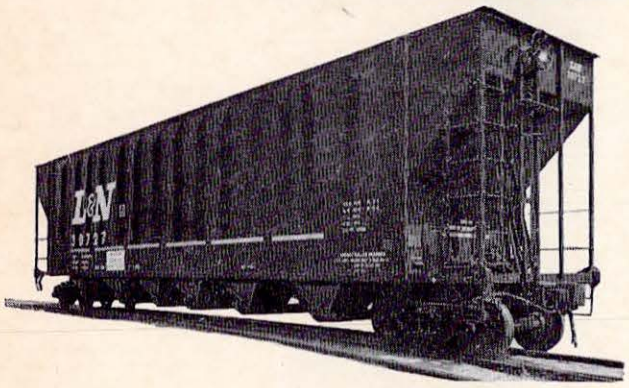




In any given year Greenville builds more kinds of cars than any other contract builder. Many are the first of a kind, selected as part of a concerted effort to win new traffic. As a result, Greenville can usually shorten the building cycle by modifying existing designs to help solve the problem at hand. An increasing number of traffic-oriented railroads include Greenville early in their planning sessions. The right cars can play a key role in your traffic development. Our experience can be important to you. Call us.

WOOD CHIPS...





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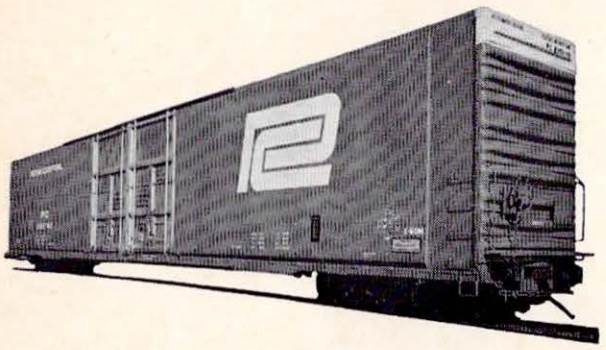

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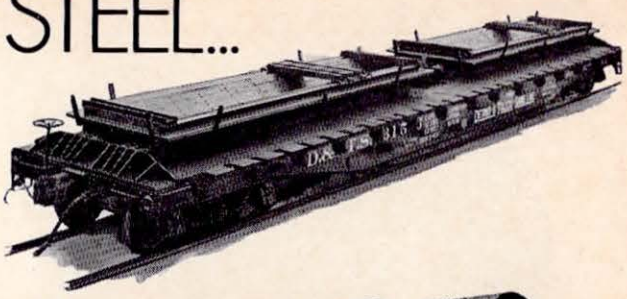

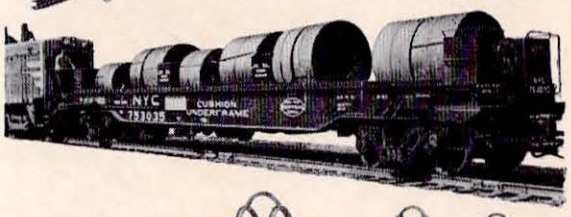

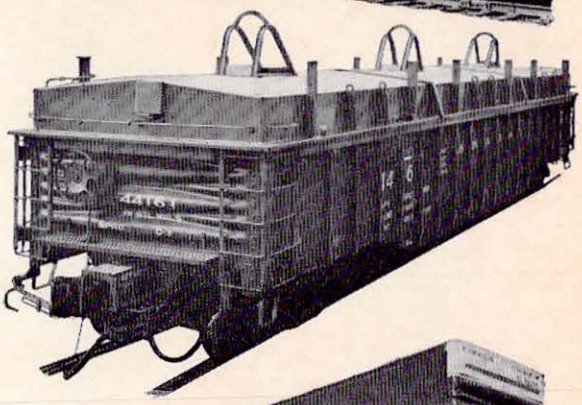

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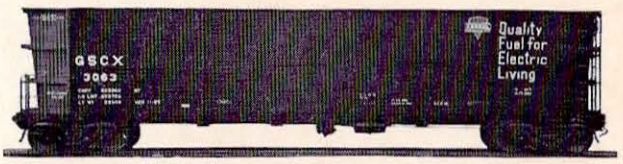

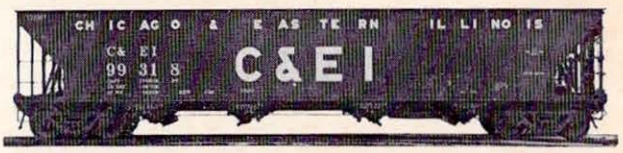

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Photo by Philip Harrison

NOW FOR TOMORROW

The story of federal research and development in transit

By CARLOS VILLARREAL
Administrator
Urban Mass Transportation Administration
U.S. Department of Transportation

Do something.

Move ahead.

The need for transit improvements is obvious.

We hear this from mayors, city councils, riders, commuters, and even motorists. The demands are clear: improve transit and do it now. The Federal responsibility is now clear: provide initiative, direction, and resources. And the assignment is clear: for 18 million daily transit riders, provide better service without adding to the problems of the city.

Our research, development, and demonstration program is intended to provide a major national impetus to spark the development and installation of new and better ways of getting around in the city. A systematic yet inventive, far-sighted effort to do for the straphanger, commuter, and rider what other programs have already done for the carpool, driver, and motorist.

The problem, as we view it in the Department of Transportation's Urban Mass Transportation Administration, is that so little has been done to increase the number of transit riders and almost nothing has been done to make their ride more comfortable, convenient, and safe.

And that is what the Department of Transportation's transit research, development, and demonstration program is all about.

Take fiscal year 1969 (July 1, 1968, to June 30, 1969) as an example. During that year, the Urban Mass Transportation Administration was budgeted $18.5 million for research, development, and demonstration. It appears a piddling amount, and certainly it is small in comparison with space, electronics, or process engineering R&D. That $18.5 million, however, is large in comparison with what has been spent on transit R&D in the past.

It seems to me, having come from the aerospace industry, that management of transit research should be aggressive—and particularly imaginative—because of the small base from which it must work and the outdated technological level of the industry on which it must build.

Prior to 1961 and the small transit demonstration grant program in our predecessor organization, virtually no development had taken place in overall transit systems, save individual supplier product improvement. We intend to change all that. Fifty million dollars has been spent in transit R&D by the Federal Government from 1965 through 1969. At our proposed new program levels, we will spend $30 million in 1970, $50 million in fiscal 1971. Projects will be directed in such a way as to get maximum transit rider improvement, in the shortest period of time, with existing systems and through the development of new systems.

We view the overall R&D needs of the public transportation industry this way: Improve present systems and develop completely new systems.

In other words, cars, train controls, stations, terminals and better buses are not all there is to the problem. The needs extend to management training, maintenance practices, modernized or-

ganization and decision making techniques. Perhaps more important is a better understanding of the legal, institutional, planning and financial hang-ups and constraints that impede the orderly implementation of new transportation technology.

Program direction

Which comes first—immediate improvements to existing systems or longer term, far-out developments? Our R&D program strategy provides the answer. We are doing both. The short-term accomplishments are the basis for other long-term system developments.

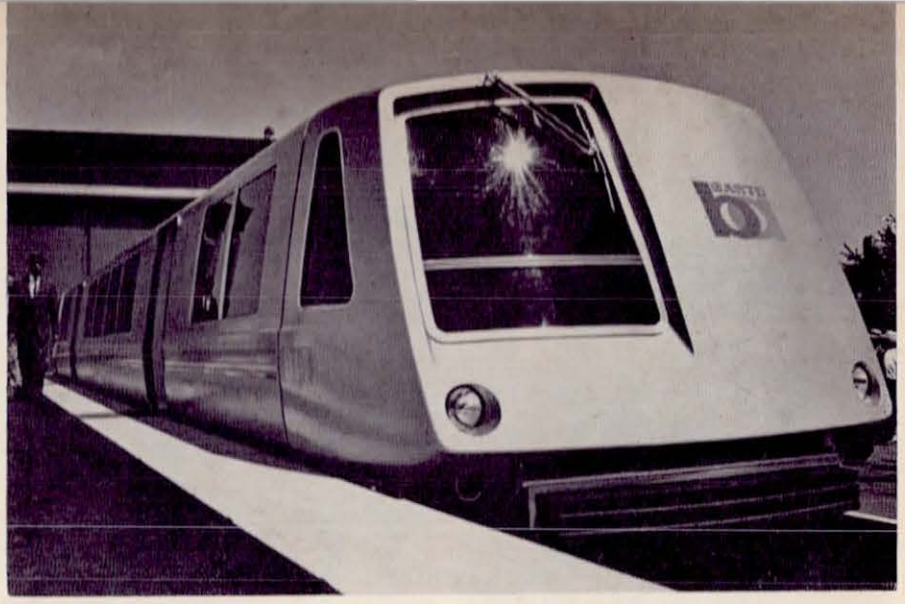
It is clear to me that future systems —hardware and software, cars, controls and concepts—can only come from coordinated research and demonstration. We have components and all sorts of bits and pieces, technology not yet successfully applied to transit. Future systems are still ahead of us. In addition, we need a sound understanding of the costs and the many different benefits of these future systems. We must know how new systems will fit with regional development plans and whether future systems will solve problems or only add to them. Hardware alone isn't going to do it. We have significant work yet to do in these other important fields.

The idea is for us to learn, and learn fast, lessons that can be applied to later longer term development of new systems. What we are looking for are short-term results which substantially move us ahead in both the short term and the long term. Controls developed in the short term for San Francisco's Bay Area Rapid Transit (BART), for example, provide the basis in the long term for controls for future personal transit systems.

Our first responsibility in UMTA, however, is to keep existing systems in operation. With capital grants we must make it possible for cities to own, add to, and improve present service. One look at our budget confirms this: Of the $175 million we were budgeted in 1969, $148.5 million went for capital grants and only $18.5 million for R&D and demonstration.

Research program

Our 1969 research funds were allocated as shown in the following table:



BART R&D STUDIES led to evolution of new car type shown here.

GM's RTX BUS reflects findings of UMTA-sponsored bus design project.

"Considerable effort is directed toward better rapid transit car design, improved buses, terminals and stations. Cars which might have taken Horace Greeley West or Grover Cleveland to Wall Street must go."

UMTA R&D PROGRAMS

Central City	$ 2,300,000
Major Activity Centers	710,000
Lower Density Collection and Distribution	2,530,000
Commutation and Linkage	3,500,000
Employment Facilitation	2,500,000
Equipment and Facilities	4,850,000
Management and Operations	610,000
Planning and Program Analysis	1,500,000
TOTAL	$18,500,000

What we call "urban applications" received $11.5 million. The central city, major activity centers (i. e., airports, new towns, universities), collection and distribution systems, and home-to-work commuting received the most attention. Employment facilitation is an important program since it is demonstrations of new kinds of transportation to hard-core unemployed adults. It is included here.

Technological innovations in equipment come next. Cars, terminals, and bus development received $4.85 million in 1969. Not all, but too much, transit equipment is of three types: old, older, and oldest. Considerable effort is directed toward better rapid transit car design, improved buses, terminals and stations. Cars which might have taken Horace Greeley west or Grover Cleveland to Wall Street must go.

Car design and development

Transit car design and development received more than 25% of our research dollars during the past five years. The BART test track and prototype car are the first program since the PCC streetcar developed in the 1930's to make substantial improvements in total transit car design. Developments in automatic train control, power pick-up, suspension systems, and the BART car specifications could easily make Mt. Diablo the Menlo Park of transit cars. We expect to continue this effort.

Secretary Volpe feels as strongly about transit research as I do. Earlier this year he said, "We have to cast our thinking in terms of what is possible with today's technology and the newer

NEW STATIONS in Chicago link Dan Ryan transit line with other modes.

concepts that are looming on the horizon. The burgeoning success of our high-speed, inter-city trains in the Northeast Corridor is just the beginning. Any nation that can split the atom, deploy thousands of computer installations, and send three men to the moon and back ought to be able to provide better public transportation than we have now . . . The hurdles we have to leap are not so much technical as conceptual."

Last year these projects got under way: the BART prototype car; identifying possibilities for improved rail wheels, brakes, and suspension components; and tests on the Long Island Rail Road of a new turbo-electric power plant.

Bus developments

For all but the 20 largest American cities, rapid transit means bus transit for the immediate future. Bus transportation of one kind or another which comes closer to the personal service of a private automobile has possibilities as a complement to, or replacements for, conventional bus, rail transit, and freeway systems.

During 1969, development of door-to-door demand-responsive bus service and automatic vehicle monitoring moved ahead. The bus fleet management improvements we are developing also have application to other urban vehicle management problems such as police cars and truck delivery systems.

Large capacity computers and significant UMTA-sponsored developments in their application to bus control, utilization and efficiency offer significant improvements in the level and reliability of service.

We are designing a better suburban bus for local roads and streets, particularly for a demand-responsive bus system—a bus in between the conventional bus and the minibus.

New bus power plants are being tested. Steam and gas turbines, for example, offer considerable promise. The design of improved bus passenger shelters and a bus priority traffic control system are other aspects of efforts to improve existing bus service. Unconventional bus service concepts involving neither fixed routes nor fixed schedules are being demonstrated as the basis for possible implementation.

Personal rapid transit

Personal rapid transit offers the most promise for completely new future systems. Small six or eight-passenger vehicles traveling over a fixed guideway network, either over standard routes or else automatically routed individually from origin to destination at network stations, are planned.

Personal transit research received $1 million in 1969 and will receive about $1.6 in this year. These small vehicle systems show the greatest promise for feeding high-density, long-haul rail systems where they exist, and high capacity on their own in cities without a rail system.

They provide a promising future alternative to medium-capacity systems on the urban fringes and in smaller cities with less area and intensive land development.

We see proposals on supposed new forms of small vehicle personal transit systems almost every week. More than a hundred have already been indexed and catalogued.

Most of these, I regret to say, are not systems at all. Rather, they are the proposed application of a single component from a present use to a future transportation idea. It may be a control element, power unit, or a guideway. Nearly all lack system design; too few have any application to our foreseeable future needs.

Nonetheless, careful consideration, test, and, in some cases, demonstration of personal transit do offer important new opportunities.

We have made detailed technical evaluations of several concepts. Engineering of these systems, their related controls and communications components, and the evaluation of new fast transit line haul systems received more than $1 million in research funds last year.

Tunneling

The Office of High Speed Ground Transportation and UMTA have jointly undertaken problem definition and feasibility work in soft-ground, non-pressurized tunneling, tunnel linings, material handling systems, rock fracturing, and cost estimating.

Advances in tunneling technology and their effect on the cost of new transit systems—witness Montreal—

(Continued on page 31)

URBAN MASS TRANSPORTATION ADMINISTRATION

Fiscal Year	Research-Development No. of Contracts	Research-Development Amount	Demonstration No. of Contracts	Demonstration Amount	Total No. of Contracts	Total Amount
1965	1	$6,000	11	$9,100,000	12	$9,106,000
1966	2	205,000	7	5,600,000	9	5,800,000
1967	25	3,500,000	14	5,500,000	39	9,000,000
1968	10	1,300,000	18	7,000,000	28	8,300,000
1969	36	6,300,000	32	12,100,000	68	18,400,000
1970	—	12,000,000 (est.)	—	18,000,000 (est.)	—	30,000,000 (est.)
1971	—	20,000,000 (est.)	—	30,000,000 (est.)	—	50,000,000 (est.)

Total contractor employment, all projects, 1969—2,500
Total number of prime contractors, 1965-69—94

D. C. Metro hurdles the money digging may start Dec. 9

DRIVERS cram cars into government parking lots. Chaos reigns at rush-hour.

WASHINGTON TODAY...

HURRY UP AND WAIT is order of the day—every day—for bus riders.

Like many American cities, Washington, D. C., is car sick.

Two native conditions contribute to the city's transport ills. First, all vehicles must move on the surface—either on streets designed for the city's defense but not for the smooth movement of its people, or on access roads that simply can't carry the load created by the second native characteristic. That second thing is the pattern of to-and-from movement between a huge outer area and an inner area where the jobs that draw the traffic load are concentrated.

The result is that acres of automobiles crammed into government parking lots have become Washington's new monuments.

Viewing the chaos from a helicopter, President Nixon could only say: "I'm glad we don't have to drive to work."

● **Rails to the rescue.** A couple of weeks ago, the President was able to make another comment: "More than a subway will begin in December. A city will begin to renew itself, a metropolitan area to pull itself together. That the Nation's Capital is involved makes this event of national significance."

What Mr. Nixon referred to was a Congressional break in the road-rail controversy that had delayed transit relief for nearly 10 years. Rep. William H. Natcher (D.-Ky.), chairman of the House subcommittee that controls the District of Columbia's wallet, said Sept. 24 he would recommend freeing the funds marked for the start of subway construction. Natcher said he finally was satisfied that nothing would block the other part of the city's authorized transport plan, construction of another bridge over the Potomac between Arlington, Va., and the District, and study on construction of other freeways within the city.

Even though final Congressional action was still needed, the Washington Metropolitan Area Transit Authority felt secure enough to announce that construction of the downtown subway could begin on Dec. 9.

● **Billion-dollar benefits.** There are a number of ways to measure the benefits of rail transit to a city. When Washington is involved, the best way

barrier;

is to look from the angle of the Federal government, the city's major employer, biggest landowner and strongest operating entity. From that angle, you see anticipated direct benefits worth $1.5 billion over a period of 50 years.

It may seem naive to say that anything, even good transportation, can boost efficiency in the bureaucracy. Also, it may be true that you can make a study say anything you want it to. Nevertheless, that $1-billion figure is extended boldly by Development Research Associates, of Los Angeles, as the "quantifiable" benefit of the planned Metro rail system.

The figure is gained by adding up savings in five major areas of concern to the Federal operation in the Washington area. The areas include parking construction cost-savings, conservation of land for productive use, savings on inter-agency shuttle movements, reduction in tardiness and early departure, and reduction in dismissal for bad weather.

The benefits represent 94% of the present value of the Federal share of the Metro system's costs, DRA says. Because of the unique Washington situation, such benefits far exceed those that could be gained in any other city where Federal assistance is provided for transit purposes, the study says.

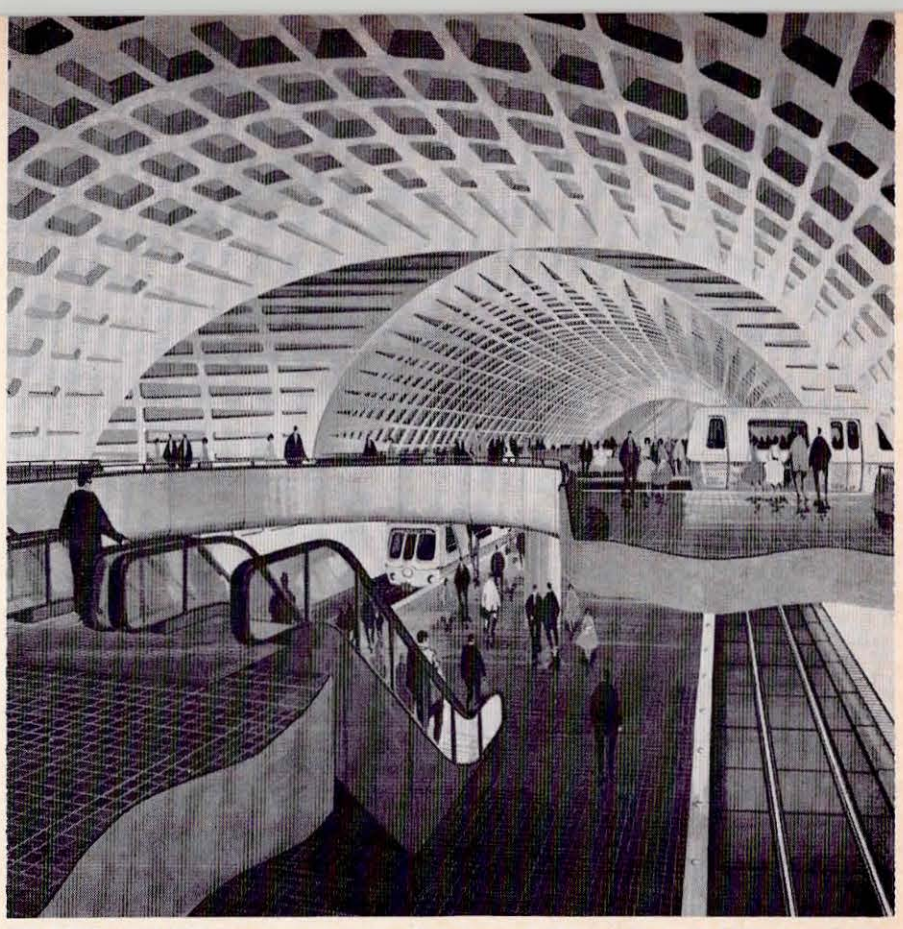
Indirectly, there would be further Federal benefit, in the form of personal savings to Federal employees. By 1990, DRA says, savings in daily commutation would range between $34.9 million and $41.9 million.

● **Most Government workers drive.** To appreciate the DRA findings, you must consider some Washington facts-of-life. One out of every three persons in the D. C. metropolis has a Federal job. And more than 80% of those people drive to work. This means that each working day, more than 200,000 autos swarm into a small area that can barely accommodate them, moving or standing. The Federal government provides barely 20% of the parking space it needs for its own people. Government cars spill out into commercial facilities or into street lanes in such a way that former Transportation Secretary Alan S. Boyd once remarked sadly, "What a waste" as he looked from his office window at the car-clogged Mall.

● **Outside grows, inside doesn't.** For further appreciation of the DRA findings, consider the population trends of the Washington area. The District finds itself surrounded by a huge suburban sprawl that is widely disproportionate to the District both in area and in population growth. Yet the District remains the major employment area. The city of Washington itself is 61 square miles in area, and the employment centers total no more than 10 square miles. However, the region that sends its huge work force into the city five days a week totals 1,424 square miles in area.

As for population, the District of Columbia now with a little more than 800,000 residents, is not expected to reach one million even by 1990. By that time, however, the surrounding area, now with nearly 1.5 million residents, will total about 3.3 million.

In addition to the District, the Metro transit region covers Prince Georges and Montgomery counties in



BY 1980, 184,000 persons a day will be using this station at 12th and G Sts.

...AND TOMORROW

800 AIR-CONDITIONED cars like this one will travel at speeds up to 75 mph.

FRANK MALONE

NOTHING LESS THAN THE PRESIDENT'S PROMISE was needed, but at last rail rapid transit for Washington appears believable. Mr. Nixon had to promise that the D. C. City Council (his appointees) really meant their Aug. 9 back-against-the-wall vote that reversed their previous opposition to a new Potomac River bridge. Along with new freeways inside D. C., the bridge had stirred civil-rights, home-rule emotions in a 71%-black city. Until its reluctant reversal, the Council supported the contention that roads meant further displacement and infringement. In response, William H. Natcher (D.-Ky.), chairman, House subcommittee on District money, had blocked rail funds.

MR. NIXON ALSO HAD TO GUARANTEE THE ATTORNEY General and the Transportation Secretary would help the D. C. corporation counsel "vigorously" fight lawsuits that might be filed against the highway projects. This kind of assurance was what Mr. Natcher called for in an Aug. 11 House-floor speech on "balanced transportation." He said then the 1968 Highway Act provisions for a new D. C. bridge and freeways must be observed—or no subway. Between the President's Aug. 12 promises and Mr. Natcher's Sept. 24 promise to recommend release of subway money came these further developments: (1) the Federal Highway administrator "reinstated" the District interstate highway plans in the fiscal-1970 budget; (2) the D. C. highway department took bids for the bridge-building; (3) the Budget Bureau director confirmed the FHWA reinstatement; (4) the D. C. highway department showed proof that bridge work indeed had begun.

JUBILATION SPREAD through the crisp new offices of the Washington Metropolitan Area Transit Authority. Since its 1966 creation as successor to the National Capital Transportation Authority, WMATA had been busy repeating Yes, Washington (Virginia and Maryland, too), there really will be a subway. WMATA could do little else because (1) NCTA had drafted the basic transit plan in 1962 and WMATA could offer only variations on the original 83-mile plan; and (2) a 1966-68 anti-bridge lawsuit and the Council's 1968 anti-bridge vote, which caused anti-subway reactions, gave WMATA ephemeral feelings.

MR. NATCHER HAS TO DRIVE TO WORK from the city's Northwest corner. The planned subway will not run within usable distance of his house. Maybe WMATA should have re-routed Metro to accommodate Natcher station.

Maryland. It also includes the independent cities of Arlington (same as Arlington county), Alexandria, Fairfax City and Falls Church, and Fairfax County, all in Virginia.

● **Benefits to the city itself.** DRA also has measured subway benefits to the city itself. The major benefits to the city of Washington, DRA says are:

—A speeding-up of decentralization while the viability of downtown is preserved.

—Provision of accessible employment opportunities for the disadvantaged.

—Adequate transportation for the young and aged (an estimated 45% of the District's population by 1990).

—A broadening of education opportunities and of accessibility of cultural and recreational activities.

Approximately 40% of the District's inner-city, disadvantaged residents rely on public transportation for movement to their jobs, which in many cases are outside the District. In a city where everything must move on a road system pocked with circles for gun emplacements (the defensive design of the city's planner, Pierre L'Enfant), bus travel can be an experience that quickly saps interest in anything except getting off the bus. Transportation is hindered further by a time-wasting system of transfer between three separate bus lines.

When President Nixon referred to a city beginning to renew itself, he reflected hopes for a revitalizing of the District's downtown business area. DRA says that data projected to 1990, even with a broadly expanded suburban area, shows that the Washington central business district will keep on generating and attracting traffic. Without the addition of rail transit, surface congestion could force many firms to a less central and less desirable location, DRA says.

● **A $2.5-billion system.** The green light that Rep. Natcher's Sept. 24 statement signaled covers the initial release of $120.9 million for a Metro system that will cost a total of $2.5 billion by the time it is completed. That $120.9 million would go for construction of the first six miles of the basic, two-armed 25-mile system designed for the District. The six miles are set for completion by late 1972. The entire basic system is expected to be operating by late 1975. One of its arms will run through Northeast Washington alongside C&O/B&O tracks to Union Station, then through downtown and out through Northwest Washington. The other arm will run from the Pentagon area on the southwest side through downtown by a zig-

(Continued on page 26)

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Your single source supplier of original equipment

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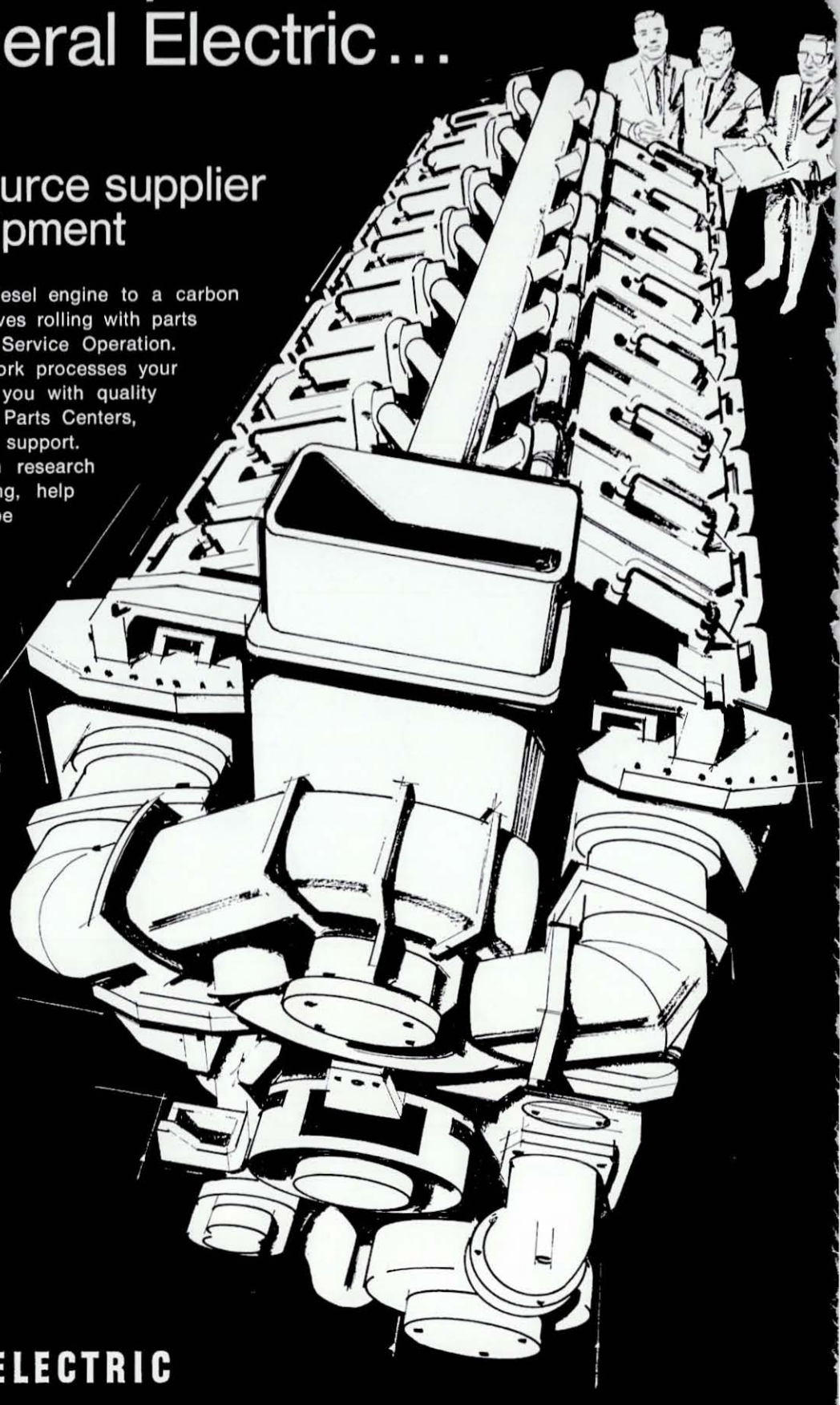


TRANSPORTATION PARTS SERVICE OPERATION

GENERAL ELECTRIC

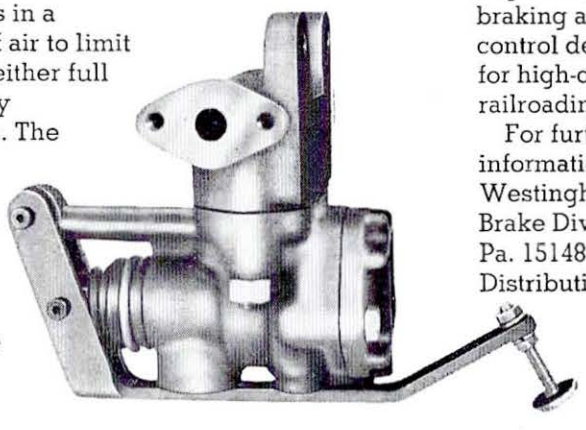
Railroading is exciting enough

Here are two WABCO valves designed for complete calm

This banner year for railroading is a time for celebrations, 100th anniversary parties, noisemakers, the works (WABCO is also celebrating its 100th anniversary).

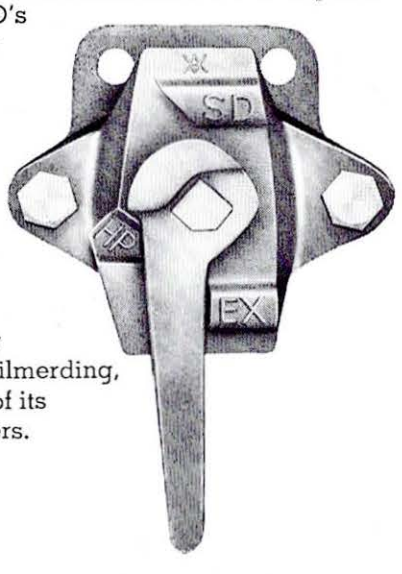
But some things are better left dull and uneventful. And some noisemakers are inappropriate: slid-flat wheels, for example. WABCO has a detector valve to prevent them. And we have a retaining valve that performs much too flawlessly to cause any excitement.

WABCO's L-1 Detector Valve is an empty-and-load sensing device that protects against excessive braking and possible slid-flat wheels on empty cars. When the car is loaded, the L-1 valve permits normal braking. But when the car is empty, the valve cuts in a "detector volume" of air to limit braking pressure in either full service or emergency application of brakes. The WABCO L-1 Detector Valve is compatible with the WABCOPAC brake assembly, truck mounted brake assemblies, or mounted cylinder brake systems.



WABCO's F-3 Retaining Valve is a rugged, three-position valve designed to meet three basic goals: low initial cost, simple construction, and easy maintenance. With just 14 parts in a durable cast iron body, it delivers long, trouble-free performance, unaffected by extreme temperature.

We're all for letting off steam to celebrate this big anniversary year. At the same time, we want you to know that WABCO's Westinghouse Air Brake Division is quietly at work, improving the braking and control devices for high-capacity railroading.



For further information write Westinghouse Air Brake Division, Wilmerding, Pa. 15148, or any of its Distribution Centers.

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Circle 15 on coupon page 38

We've got the cars that make transit systems rapid.

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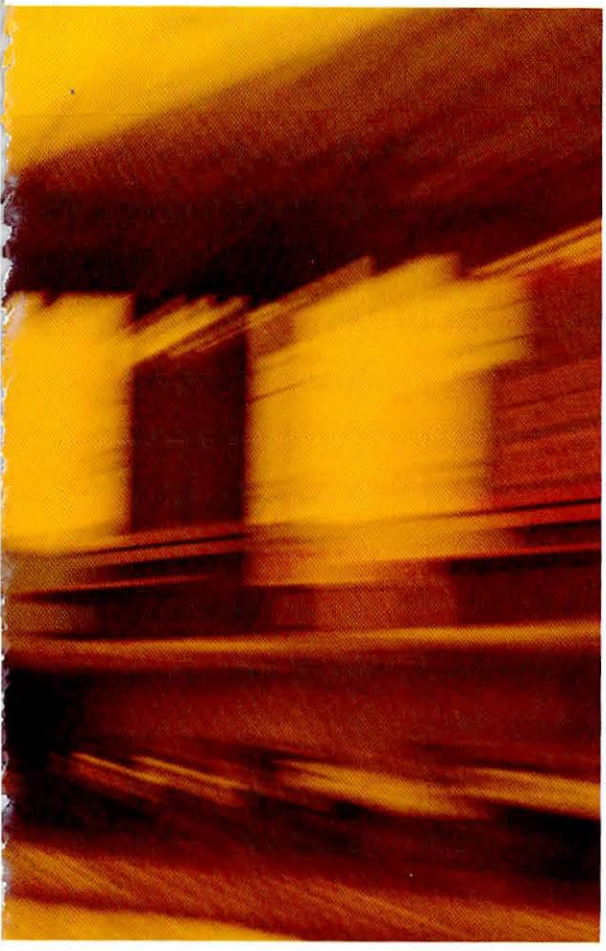

There's more to building a transit car than designing in carbon steel, stainless or aluminum. And more than engineering it to basic specifications.

It takes an understanding of systems.

With its affiliate divisions, Pullman-Standard engineers can participate in every aspect of rapid transit systems development, including traffic studies, interface analysis, route planning, civil engineering, operations, maintenance, and even automation.

This experience results in the finest cars for existing or planned systems. It's why you'll find Pullman-Standard cars on the country's most successful systems, from commuter runs to subway lines to airport service.

Before you settle on a car, make sure it's right for your service. Before you settle on a system, see us.

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LUTHER MILLER

AS THE EDITOR SEES IT

"THAT MESS IN WASHINGTON" is a phrase that railroad and rail transit men have freely, feelingly and with a great show of non-partisanship applied to the existing state of affairs, at any given time, in and around Foggy Bottom. And many of them have wondered if their paid representatives in Washington were really doing anything to clean up the mess.

IT IS A PLEASURE TO REPORT that the situation along the Potomac is considerably less messy today than it has been in years. And the credit must go to the paid help. Two recent victories offer satisfying proof that we *are* getting our story across in Washington, at last.

EXHIBIT NO. 1 is the 7% investment tax credit. Who believed just a month ago that there was one chance in 100 to save this modernization incentive for the railroads? "No exceptions to repeal" was officialdom's ritualistic chant. The timid among us were ready to accept the half-a-loaf offered by the fast tax write-off proposed for some, though not all, new freight cars. But the timid did not include the Association of American Railroads, or the Railway Progress Institute. AAR's Tom Goodfellow and RPI's Nils Lennartson, supported by leaders from their respective membership rosters, kept knocking on doors, and telling their story, when others had abandoned all hope. The result is old news: The Senate Finance Committee decided to permit railroads to continue to use the tax credit on a slow-phase-out basis. The war isn't won—but the battle stars establish conclusively that we have men in Washington who know what they're doing, and how to do it.

EXHIBIT NO. 2 is the President's request to Congress for $10 billion over a 12-year period to meet rising demands for mass transit. The fact that he stopped short of endorsing the trust-fund approach does not detract from the brilliant effort put forth by a remarkable coalition of rail and highway interests, as represented by the Institute for Rapid Transit and the American Transit Association. Belatedly but enthusiastically, these groups buried the hatchet, teamed up with the National League of Cities—and got most of what they wanted. They are still fighting for a trust fund. Odds are they'll get it, or at least something as good if the present united front can be maintained. It shows no signs of cracking.

WE HAVE FOUND OUR VOICE in Washington. And as a well-known TV personality would put it: "How sweet it is!"

D. C. Metro hurdles the money barrier

(Continued from page 20B)

zag route, and then out through the east-central part of Washington. Six other branches are scheduled to extend through Maryland and Virginia suburbs by the end of 1979, according to Transit Authority plans.

The $120.9 million of immediate concern includes one third from District funds and two-thirds in Federal matching money.

The expenditure that Rep. Natcher okayed cannot actually be made until Congress approves (1) a supplemental 1969 appropriation for transit and (2) the District budget for fiscal 1970. That action is expected before the end of October. Natcher's subcommittee, however, carries the major weight in general House decisions on District spending. His support was considered the key, even though the District budget will have to be ironed out with the Senate committees that also have jurisdiction over Washington activities.

For the entire project, the District's share would total at least $208.7 million. The total to be added by the suburbs is an estimated $149.9 million for Virginia and $197 million for Maryland. Suburban shares also will be matched with Federal funds. All the suburban shares have been approved by local jurisdictions.

● **Metro's anatomy.** The physical characteristics of the planned Washington Metro system look like this:

—A total of 97.7 miles: 37.7 miles in the District, 30.1 in Virginia, 29.9 in Maryland, with 47.2 in subway and 50.5 on surface.

—An estimated 1990 annual patronage of 292,610,000 passengers (separate rides) whose fares the Metro Authority says (with wide disagreement) will pay all operating costs.

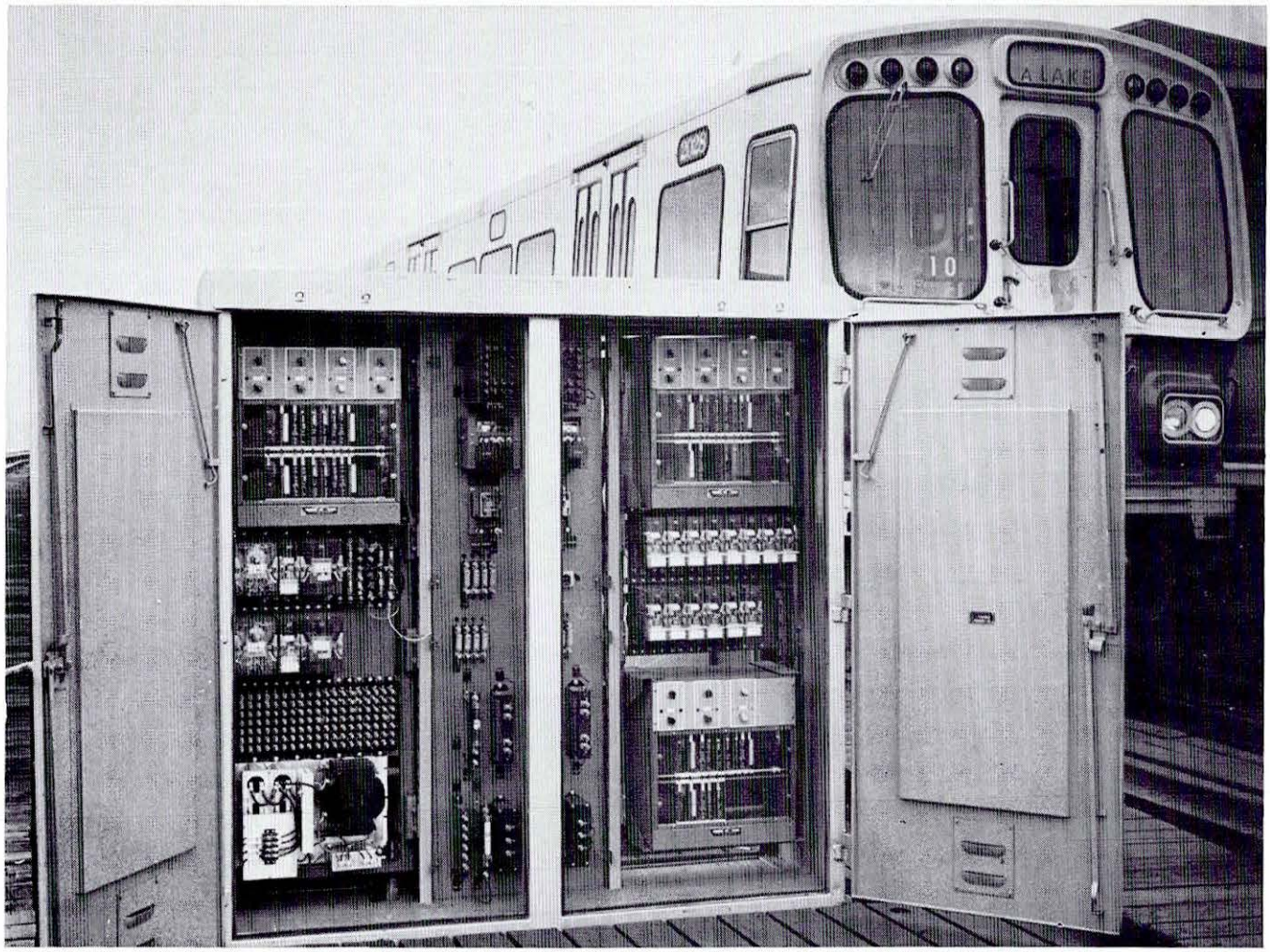
—Maximum speed of 75 mph, with an average system speed (stops included) of 35 mph.

—Proposed service of two-minute rush-hour frequency on main routes, and four- to eight-minute frequency on branch lines, with daily operation from 5 a.m. to 1 a.m.

—Coordination with a feeder-bus network, and auto and taxi drop-off lanes, with 30,100 parking spaces.

—Equipment consisting of 658 air-conditioned cars 75 feet long and 10 feet wide, with capacity of 81 passengers seated and 94 standing, operating in trains of up to eight cars long.

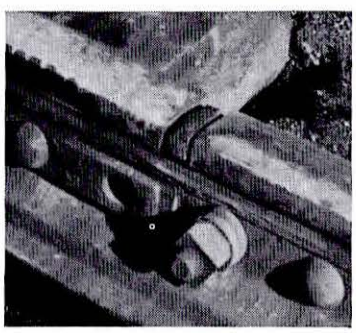
—A total of 86 stations, 53 underground, 44 in the District, 20 in Virginia and 22 in Maryland. ■



Typical wayside equipment case for high-frequency track circuits, cab signaling, and overspeed control.

GRS HIGH-FREQUENCY TRACK CIRCUITS—

Save insulated joint costs
Allow use of smooth riding continuous rail
Are building blocks for transit automation



GRS high-frequency track circuits eliminate insulated joints like this, save joint installation and maintenance costs, and ensure smooth riding.

With GRS high-frequency track circuits, no insulated joints are needed. Thus—with the exception of certain joints needed at interlockings—you can wipe out the insulated joint problem.

These modern, electronic track circuits are ideal for continuous welded rail—you get the added bonus of smoother riding.

GRS high-frequency track circuits are the basic building blocks for cab signaling, for overspeed control . . . even for ultimate system automation.

In our transit control group there is a unique pool of experience, of information on trends in rapid transit, of computer-oriented technology, ready to help you—just call or write.

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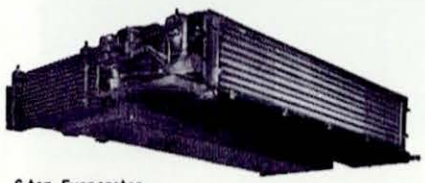
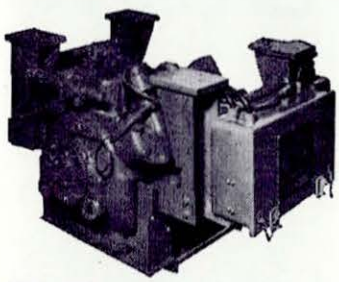
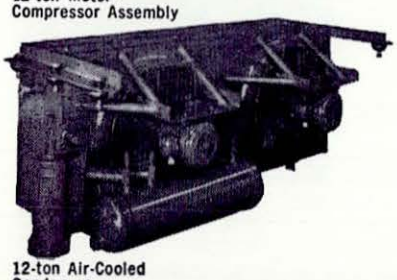


6-ton Evaporator and Blower Assembly, overhead unit



12-ton Motor-Compressor Assembly



12-ton Air-Cooled Condenser

These units are part of the **Safety** Equipment which provides the air-conditioning for cars on the new high-speed Northeast Corridor trains. A motor-compressor assembly, air-cooled condenser unit, and a motor starter and control panel are each separately mounted under each car. Two six-ton evaporator and blower assemblies are installed above the ceiling, one at each end of the car.

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PENN CENTRAL'S
MALCOLM RICHARDS DESCRIBES:

The changing role of purchasing/ materials management

Associations are often slow to change, slow to adapt to changing conditions. But a couple of years ago, the AAR's Purchases & Stores Division took a hard look at itself, decided change was needed—and proceeded to make change quickly and in far-reaching fashion. There was a new name, Purchases & Materials Management Division, and there was a general reorganization—aimed at creation of an intra-industry entity which would better meet the expanded needs of P&MM people. Current chairman of the Division—which meets this week in Chicago—is Malcolm P. Richards, Penn Central's vice president-purchases and materials. With Railway Age Washington Editor Frank Malone, Mal Richards talks about change—in the over-all P&MM field, in buyer/seller relationships, and in the AAR *Division itself.*

Q. Mr. Richards, what changes are taking place in P&MM operations?

A. The changes are developmental, with emphasis going into the management of materials as it encompasses the broad scope of the whole field. Change is in going from the old separation as to storekeeping, warehousing, and procurement, into the whole realm of material management from the inception of need through to providing material in place, and the management of the inventory dollar. Rather than dividing up our people, by functions as such, we're assigning areas of interest, approaching broad areas of operation to manage the whole flow at one time.

Q. Is this emphasis widespread?

A. It is, and the interest is uniform. Individual railroads are attacking it as it suits their operations and tailoring their functions and their performance in their own manner.

Q. What causes a change in emphasis like this?

A. I suppose the realization of the importance that material management can play in the whole railroad operation highlights our purpose and changes our objective. Now, we're more aware that we can make a substantial contribution to the operation and to the conservation of dollars, and we are gearing ourselves to that end.

Q. Do these changes reflect any shift in goals? Or are they more representative of development of new ways to reach these goals?

A. Well, I'd say they represent development of new ways to reach the goals.

Q. Are there "classic" goals of a purchasing and materials management operation?

A. The over-all objective, I think, has been the same through the years. Our purpose is to provide materials and supplies when they're needed at the best cost to our property. That is unchanged; we've always had that. The progress and development is in the area of how to achieve this objective, in that we're more cognizant of the results of failure to have material, of having too much, of bringing forth more than is necessary at a time, of trying to provide materials too cheaply, resulting in over-all cost to our property later on. We're more knowledgeable. We have more information available to us, more history through the use of computers and computer data, to manage inventory currently, to recognize what is good value for our property, and to still provide the things we need at the time we need them. That's why I say it's developmental. We're still trying to do the same thing. We now are a little smarter and certainly we have better tools to manage our inventory.

Q. Are top P&MM men being called upon by top management to accept broader responsibilities?

A. The broadened responsibility is in the concept we've just been talking about, in the importance of making our money work for us, in terms of what we buy, how much of it we carry, in doing the proper job for the users. The responsibility that we assume becomes the management of an asset—as opposed to just having things available. Management is the whole process of preparing, of chairmaning our requirements, of bringing them forward through procurement, and

"THE GREATEST NEED WE HAVE IS FOR RESEARCH"

handling material once it's on the property. We're looking to manage the whole picture at one time, rather than to divide it up in pieces.

Q. Does this mean that authority is being delegated to the P&MM people that formerly rested with others?

A. This might vary from property to property. The more outstanding materials officers, over the years, have assigned themselves the responsibility of watching over inventory, of bringing material on and of trying to buy as well as they could. The broadened responsibility, if there is any, would be in recognition there is a great deal of money involved here, and that it takes a management approach to the whole thing rather than the division of it into the several segments.

The bringing together of the several segments, involving procurement, warehousing and inventory, is being delegated to top purchases and materials officers because of the recognition of the values that are here, of the tremendous investment that a company has. Purchases and material management people have been made members of top management to supervise this aspect of railroad operations.

Q. Are new efforts needed in the training of P&MM personnel? Do you see them being undertaken, within the Division, or to any significant extent by individual companies?

A. Continued efforts are needed in training personnel. Significant steps are being taken, both by the Division and by individual companies. The Division set up a standing committee on training. The purposes are to develop training programs per se, to encourage the inter-working of the specifics involved in our whole field. They are the liaison, if you will, between the specific subject committees, the standing committees of the Division. They have developed, and aided in developing specific seminars for training purposes. Individual railroads are supporting the Division in this work. In addition, I think they generally are trying to upgrade their personnel and broaden their outlook, by exposure to outside industry and by insisting that buying personnel and using personnel become familiar with their suppliers, with the process of manufacture of materials that we use.

The need for training is constantly with us. No matter how well trained any man is, there's always opportunity for improvement, and I think all of us are continually seeking that.

Q. Do you think the need for training of materials personnel is any greater or any less than the need for training of personnel in other departments of a railroad?

A. Training of materials personnel is parallel to the requirements throughout the railroads. After all, we are all working toward a common end. We are in business to service the using departments, and we must keep up with them.

Q. What kind of men are you looking for?

A. We look for men who are most of all, inquisitive—and who appear to be sound thinkers and good reasoners. The type of educational background is not so important to us as the demands that are made of it. We have, probably, more economics and business majors, but we use these people along with technically trained people. The academic background itself is not that important.

Q. Switching to another area: Generally speaking, do you find sources of supply to be expanding, shrinking or staying about steady?

A. If anything, sources of supply seem to be expanding. There are firms coming into the marketplace who have not been in the business before. I say this, despite the fact that there are mergers and acquisitions involving some of our supply companies. In general, there are more new faces appearing.

Q. Do you see increasing competition among suppliers?

A. Yes. I would say that there is increasing competition. Competition has generally been keen, and as new people come into the field, that steps up.

Q. Has there been enough of this increased competition to cause any benefit for the industry?

A. Any competition is good for the industry and for all of us. As new people appear, it heightens that competition and keeps both suppliers and users on their toes.

Q. Is there any particular field where you notice an increase of competition?

A. An illustration is competition from abroad. Without question, this has caused us to examine our historic sources of supply. In turn, it's caused our historic suppliers to review their products. As the quality of foreign goods available to us improves, the quality of domestic goods also improves to meet that expanding competition.

Q. Has there been any significant shift in purchasing towards foreign products, or is there a point where there might be a shift?

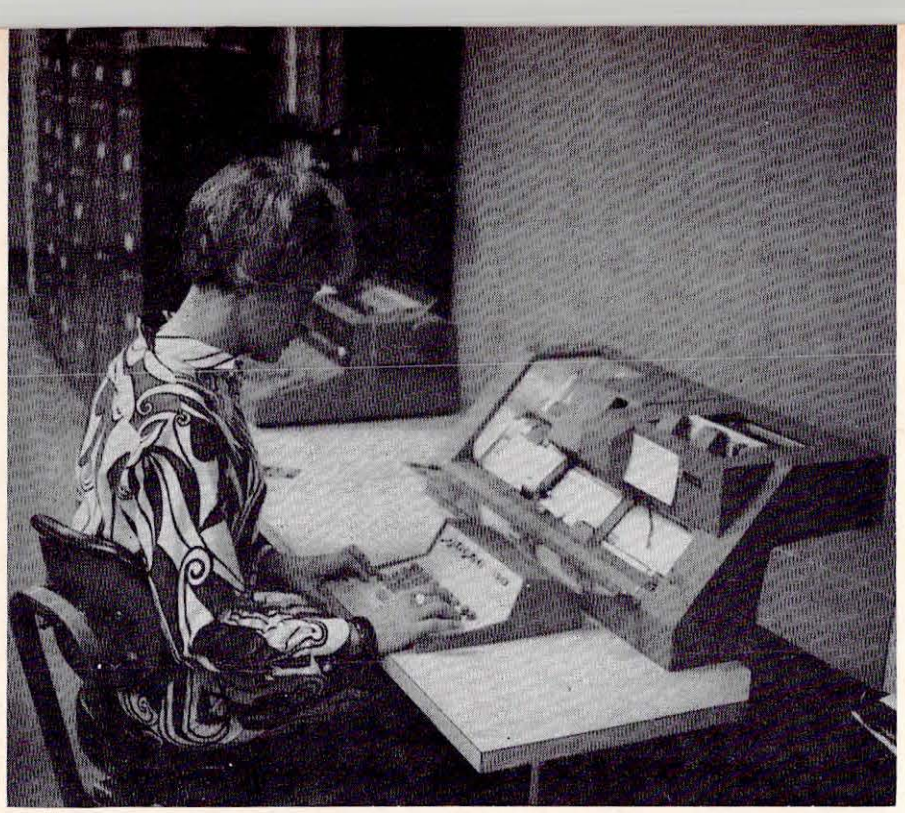
A. The prospect of a shift is ever-present. I suspect that most roads are at least sampling the wares offered to them—wheels, roller bearings, for example—to compare them with performance of domestic-made goods.

Q. In connection with this, how do you view the long-range implications of diversifying into other markets by traditional rail suppliers?

A. The current impact appears to be slight. I would feel that over the long range, the diversification of suppliers into other markets, or other marketers into the railroad supply business, will be good for both parties. We will find new materials and develop new applications for materials available to us that we have not been aware of before.

Q. To look back, and ahead, how would you sum up the past year's operation of the P&MM Division? Are there major goals yet to be achieved?

A. The past year has been successful. For the future—the greatest need we have is for research in our specific area of interest. We need to identify problems needing investigation and develop programs for exploring them. A second and continuing objective is that of the development of people. The upgrading and development of our people within the Division is our prime requirement. It is, in fact, the purpose of having a Division. ■



ONLY TWO PRE-PRINTED FORMS are used in the B&LE/Union computerized inventory control system. All other hard-copy forms and letters are produced on blank paper stock used in IBM 1050 units.

Inventory control by computers

Cost reduction, improved accuracy and better service for users are advantages cited by Bessemer & Lake Erie and Union.

A computerized inventory control system is working well for Bessemer & Lake Erie and Union Railroad purchasing and stores departments.

Four years of study and planning went into the project. The go-ahead to implement the program came when the planners determined that (1) installation was technically feasible, (2) simplicity of operation could be obtained, and (3) the advantages accruing to the railroads justified the costs.

What benefits are B&LE and URR getting? Cost reduction is one, an increase in accuracy is another. There is an automatic expediting of purchase orders. Better control is being maintained. New and more meaningful reports are being generated.

● **Better control, better service.** Most important of all, better control of inventory is providing better service for users. Says F. T. Brandt, director of purchasing and stores: "No longer do users hoard materials or supplies, because they now know that delivery can be prompt—and we know what we've got."

The latest advances in computer technology were incorporated in the system. Two IBM 360/40 computers, each with 192,000 bits of information-storage capacity are in the Pittsburgh data-processing center, with associated telecommunications equipment, disk files and input/output devices. One is normally used for telecommunications and on-line functions, the other is for batch processing.

Manual switching of central processing units, disk files and tape drives keeps the data-processing complex functioning when individual units fail or maintenance is performed. The computer polls the various 1050 terminals over dedicated telephone lines, some of these in railroad-shared Telpak groups.

Purchasing and stores normally operates from 8 a.m. to 5 p.m. with some data transmission to 6:30 p.m. Consideration is being given to using these dedicated circuits for general voice transmission after these normal P&S operating hours, reports W. K. Schomburg, data communications engineer.

Each 1050 terminal has a card punch, card reader and also provides hard copy of input and output. The store terminal is loaded with punched cards in the reader. When polled by the computer, transmission is made to Pittsburgh. To obtain maximum utilization of circuits, punched card information is generally sent in batches of 50 cards for each transmission period. Thus, one terminal cannot tie up a party line for considerable periods of time. The keypunch can be off-line while the card reader is operating in the transmitting mode. This ability to perform two functions simultaneously permits more efficient utilization of the equipment.

● **Operational simplicity.** The new inventory control system has a built-in simplicity of operation with respect to the internal functioning of the purchasing and stores department itself, and with respect to other departments on the railroads which draw their material from the stores department.

To the user of materials, the process of obtaining materials and supplies from stores has been simplified. The user fills out the top part of a punched card (Form 20-007) known as a Stock Material Requisition. Using pencil or ballpoint pen, he lists such information as quantity, date, description of item, department, and so forth. The card is delivered to the stores department which, in turn, delivers the requested quantity on the date specified.

To inform the computer of this requisition and delivery, the terminal operator at the stores location uses an IBM 1050 unit to keypunch a card with the quantity and code number. The 1050, also equipped with a card reader, transmits the information via telephone lines to the Pittsburgh computer, which updates the reduced inventory quantity on hand for the particular items requisitioned.

When transmitting from the stores locations, the storekeeper determines card count for control purposes and runs an item total on an adding machine. The computer does its addition, and reports its total to stores. If they agree, the storekeeper sends an approval to the computer, and the information is then accepted by the computer for further processing. If not, the storekeeper can request the computer to provide a hard-copy printout of the data transmitted.

● **Computer order produced.** If the quantity of materials on hand falls below the predetermined order point, a series of reports is automatically produced, leading to a computer-prepared purchase order. This order point

BENEFITS COMPLETELY JUSTIFY THE COSTS

is really a safety-stock or minimum-requirements level. It is calculated from a formula taking into account price, past usage, discounts, vendor's delivery record, loss and damage in shipment. First, when the quantity on hand falls below this point, the computer prepares a Requisition Report (Form 20-024) which is transmitted to the stores location. Output is in printed form on the electric typewriter. In addition to various codes, information on this form includes a description of the item, the economic order quantity, amount to be ordered, the reorder point for the particular location, the balance on hand and usage for the past three months. If the general storekeeper approves the requisition, the terminal operator keypunches the approval (an "A") on the computer-generated card. This is transmitted to the computer.

● **"Order Action."** As soon as the computer receives the approved Requisition Report, it produces an Order Action Report (Form 20-025) which is received in printed form in the purchasing department office in Gateway Center, Pittsburgh. This report goes to one of six buyers or the assistant purchasing agent. Information on this report indicates that action should be taken to purchase the item, giving the quantity to be purchased, price, vendor, date due at stores location, and the name and address of the vendor.

If the buyer approves the order action report, the operator (in purchasing) keypunches an "A" at the appropriate place on the punched card. This approval is transmitted to the computer, which then prepares the purchase order (Form 20-001). The 1050 terminal in the purchasing department office types the purchase order on a special two-part purchase order form, which is then given to the buyer for his validating signature. The original is sent to the vendor and the carbon copy is sent to the stores accounting department. If purchasing subsequently wants information relative to the order, it can be obtained from the computer.

When the purchase order is prepared, the computer also prepares a stores Receipt Card (Form 20-006) which is punched out at the stores location 1050 terminal. When the items ordered are delivered, the stores operator keypunches the quantity received on this card and transmits the information to the computer, which then updates the quantity in the inventory.

These steps set forth the current simplified automated operation of the inventory control system which has replaced a time consuming multi-step manual operation.

● **Where the benefits are.** There is no doubt in Brandt's mind that the benefits derived from automating the purchases and stores inventory control program completely justify the cost of installation and implementation of the system.

A 23% reduction in stock items has been achieved. The 22,000 separate stock items formerly handled by the two roads have been reduced to 17,000. Today's inventory value and carrying cost is considerably less than that formerly carried by the roads.

A system of checks has been built into the computerized system. Considerable testing was performed in checking out the mechanized system prior to its being placed in service. Parallel runs were made for three months on the Union Railroad inventory system. The manual Kardex system was continued during this period to provide a crosscheck with the mechanized system.

Errors are controlled

One of the tests performed was to enter controlled error information from the stores location at Hall, Pa., to determine if the computer edit routines would detect these errors or omissions in input data. They did, thus maintaining the integrity of the system.

Several edit routines are programmed into the system to catch obvious and not-so-obvious errors. E. Eugene Noble, director-procedures and regional data centers, cites one example to show what can be involved: Rope is ordered in pounds, but is used in feet. Hence, consistency must be maintained in the record-keeping. Also, care must be taken when ordering to determine the proper unit of packaging. Some items are sold in quantities of 100s, dozens, gross.

● **Telling the vendor . . .** Since a due date is incorporated in the system and this is indicated on the purchase order, the computer generates letters for sending to the vendor if the material is not delivered when due. Naturally, there is some leeway built-in. One week past the due date, the computer generates the first reminder letter to be sent to the vendor. This is printed out on the purchasing department's 1050 terminal and given to the buyer for signature. After the second week of not receiving the item at stores, a second letter is computer-generated for sending to the vendor. Again, the buyer must review the situation and sign the letter before mailing.

If the vendor notified the buyer of unusual delays in delivery, a new due date can be transmitted to the computer and the stores location. However, four letters can be generated automatically to remind the vendor of late delivery. The final letter is handed to the director of purchases and stores for his signature. Hence, it is very unlikely that someone will forget to follow-through on a purchase order. Often, before the third letter is sent to the vendor (this requires the purchasing agent's signature), phone calls are made to stores to determine if the receipt was inadvertently overlooked. Also, a phone call or telegram may be sent to the vendor to ascertain reasons for delay, or find out when the material was shipped.

The system is maintaining better control. One result has been to provide proper quantities of supplies in line with current and expected usage. Centralized storage of inventory information in computer disk files makes the information available on inquiry basis to all stores, says D. F. Brooks, purchasing agent. If a store runs short, the computer automatically generates orders. In such a case, the computer may compare the advantage of using from existing stores with that of issuing a purchase order to a vendor. Costs, plus delivery time are important factors here.

Initially, it was found that much of the work involved only a transfer of material from stores with surpluses to stores with shortages.

● **Checks on the market.** At the time for reordering items from vendors or when it is desired to check on the market (not only for price but also for availability of items, delivery times, and so forth) a computer-generated price inquiry (Form 20-002) is produced. This previously was done manually and was quite time-consuming. This is a multi-part form with the original retained by purchasing. Copies are sent to vendors requesting bids on an item (description and the railroad code number is shown). The bidder is requested to furnish information as to net unit price, unit weight, lowest firm price, best delivery, cash terms and F.O.B. On the basis of evaluation of the replies, plus past experience with any of the bidders, purchasing may select up to four vendors to supply the item. They are usually rated 1, 2, 3 and 4 so that, other things being equal, purchase order for the item would go to the No. 1 vendor.

Evaluation of vendors is based upon such factors as early shipping, late shipping, over-or-under shipping of quantities, invoice errors, damage or disregarding instructions. Bidder evaluations are usually made at three-

(Continued on page 46)

"NEW APPROACHES TO PEOPLE AS WELL AS TO THINGS"

(Continued from page 19)
bear directly on the rate of new system construction—particularly systems that can go underground and avoid the problems of intrusion and land taking.

Tunneling in Europe and Russia and an international exchange of transit systems technology are being considered. An international conference on tunneling technology is being sponsored by DOT for next year.

Other new systems

Performance criteria for several other new systems are under way, and they will become the basis for initiating subsequent prototype development.

We are studying small vehicle rental systems of nonpolluting, publicly owned personal transit vehicles, and this work progressed during the past year. The idea is to supplement long-haul systems with point-to-point transportation at both ends of the trip. These are vehicles one would drive, pay for by the trip, but not own.

The hybrid engine—part electric, part internal combustion—offers the opportunity to meet this small vehicle power requirement and reduce pollution while introducing the technologies necessary for buses and small transit vehicles to operate on both city streets and remotely controlled fixed guideways.

Transit management research

Research means new approaches to people as well as to things. We are taking a fresh look at what can be done to help transit managers run a better operation, but deficits and old facilities are problems not easily overcome.

Transit operators have not been able to attract young graduate engineers and business school talent, so we are developing transit management methods and improved techniques to insure the best utilization of present and future technologies, things developed elsewhere in the program. Aerospace management techniques can and do apply. We hope to use these.

My experience tells me transit needs to relate the decision process more closely to the project and system planning process.

Timely operating information, maintenance, scheduling, cost accounting, personnel management, better equipment selection, and financing methods are all obvious, all necessary, and all are receiving our attention. In 1969, more than $600,000 went into these programs, and we expect to continue at about that level this year.

It has become increasingly clear to me that if our research program is to accomplish its immediate transportation objectives it must be reviewed. It also would be helpful to identify alternatives and measure the costs and benefits of these alternatives. We also need to be able to compare the actual project impact against those anticipated and against the overall objectives of the program.

Center city transportation

Downtown transit improvements are the most pressing. But these improvements are difficult to design, costly to implement, and nearly impossible on which to get agreement. Downtown America has been exhaustively studied, meticulously analyzed, and all manner of recommendations have been made on what to do to improve it. But these improvements are very slow coming; new systems are even slower. We are determined, however, to improve downtown systems and we are doing so in the real-life world of specific cities.

The Center City Transportation Project, which the Secretary announced, is a UMTA contract with a consortium of contractors to identify technological and institutional innovations in downtown transportation—innovations which can be designed and built to serve the five cities selected, Atlanta, Dallas, Denver, Pittsburgh, and Seattle.

It is now crystal clear that significant political, institutional and organizational obstacles, problems and constraints prevent innovative implementation. We have car designs, controls, and stations, but local differences, priorities and political hang-ups intervene. The Center City Project deals with these matters and will develop a set of national guidelines useful to these as well as other cities in overcoming what heretofore have been insurmountable obstacles. Unlike so many other research efforts, ours involves not only the hard sciences but also political and social science as well.

Evaluation

Underlying UMTA research is the belief that in the central city automobiles can't do the job and for more and more people public transportation must become the means of getting around. Certainly with 100 million more people in cities in the coming 30 years, this should be obvious to everyone. We then want to develop rapid transit, rail commutation, buses, cars, personal transit, people movers, pedestrian systems—each combined with all the others.

My standard for the evaluation of each project is this: Will it make a significant impact on getting around in the city? Does it make technical sense and is the project feasible?

Projects are further evaluated as to their relevance to UMTA objectives and the other overall factors we consider, such as its effect on pollution, quality of urban life, safety and service to non-drivers. Where transportation in the city is dominated by the personal car, our research and its subsequent demonstration should evolve systems which offer the potential of a personal public vehicle alternative to the car.

In the future

Looking ahead a few years, we hope to have an advanced model dual-mode bus; a door-to-door rapid-response dial-a-bus tested and ready for demonstration in a number of cities; and a whole family of new buses when our component development and bus design program is completed. A new family of rail rapid transit cars fathered by the BART specifications will be here.

Personal rapid transit should be ready for testing up to the 70-80 mph range, and higher speed systems will be under development.

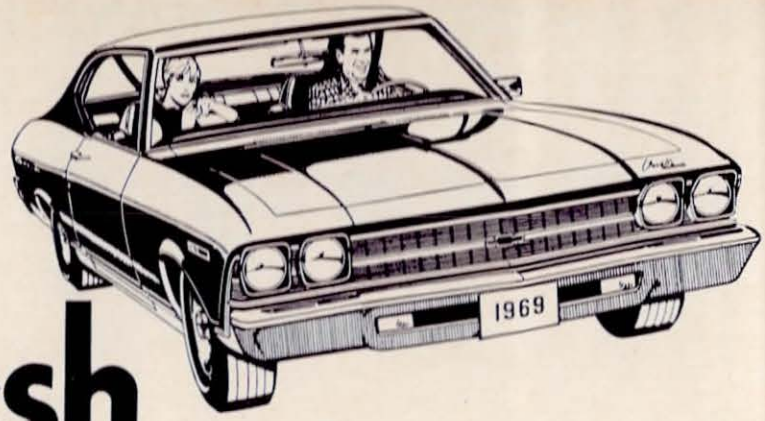
People movers, moving sidewalks, and horizontal escalators will have been demonstrated in a number of cities. We expect the Center City Project to provide the candidate cities and systems which will set the pace for much of our future R&D effort.

From people movers in the centermost part of the city to linear induction motor-driven air cushioned vehicles for intra-city travel, our program is directed to the full spectrum of new systems we are certain can be developed.

The long-term future of transit R&D, however, rests with President Nixon's Public Transportation Assistance Act of 1969 (S. 2821, H. R. 13463) now pending before Congress. Secretary Volpe has allocated $500 million for research beginning with $50 million in 1971—equal to the total spent from 1964 to 1969.

Who would have thought just four short years ago that transit would have a $10 billion, 12-year program proposed, with a half billion dollars for research?

New legislation is essential if we are to order our national priorities to make the most of progress and give cities the assurance and program continuity needed to use the results of our research. ■



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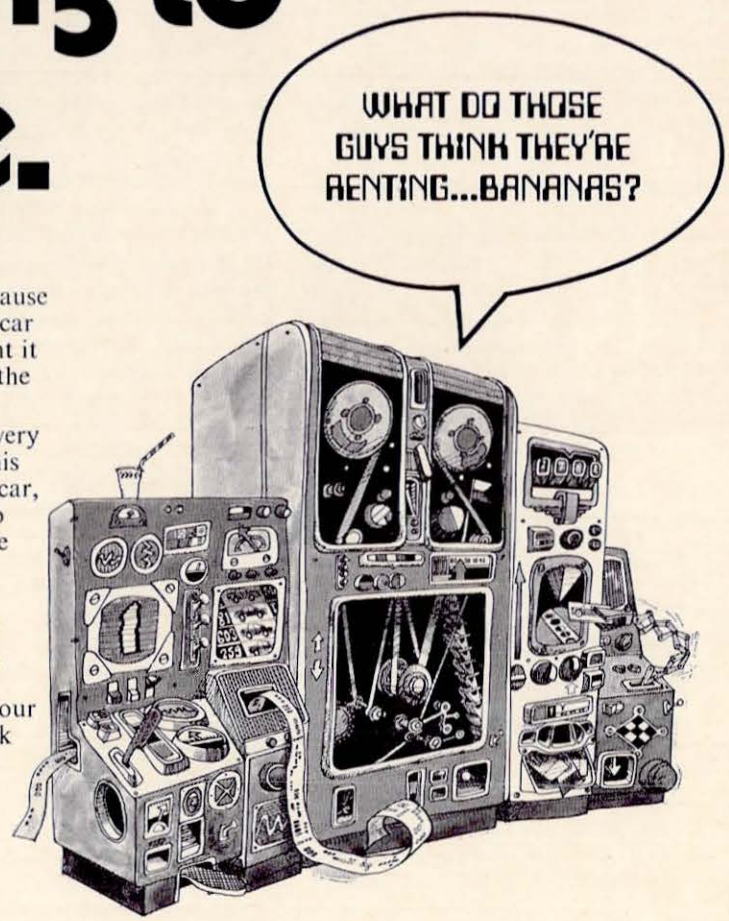

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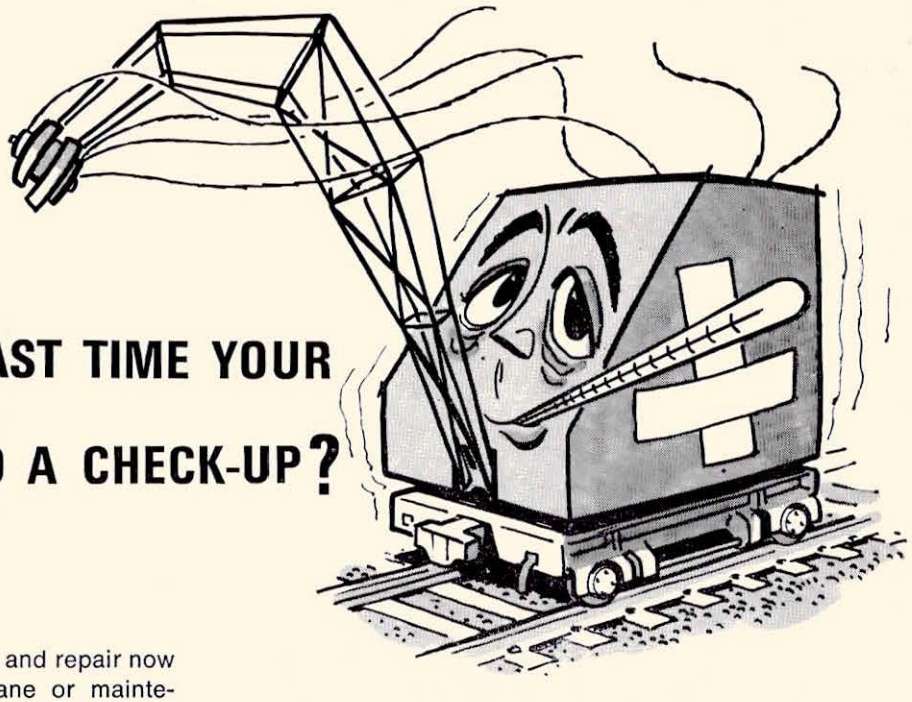

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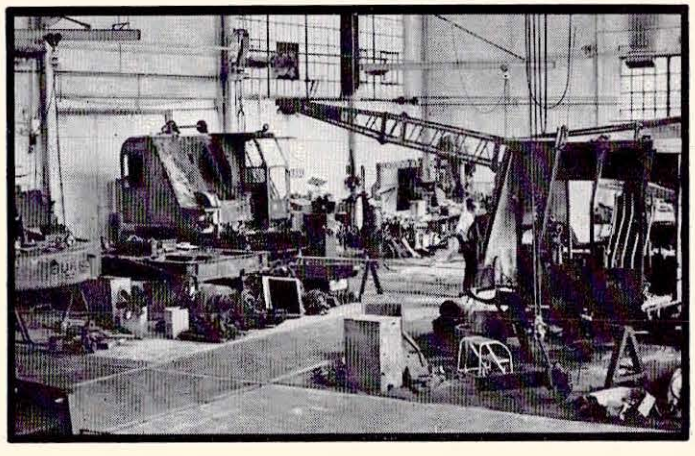

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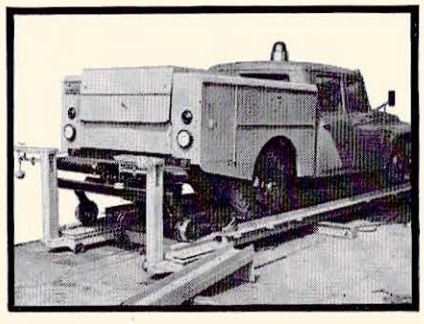

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Circle 16 on coupon page 38

There are seven good reasons why one of the brightest, new faces around Washington is Alcoa's.

Light weight . . . durability . . . beauty . . . corrosion resistance . . . ease of maintenance . . . safety . . . 66 years' experience in the transportation industry. Any one of these would have been reason enough for Sundberg-Ferar to use Alcoa® aluminum in fabricating a full-scale mock-up of a car they designed for the Washington Metropolitan Area Transit Authority.

The Transit Authority wants a safe, fast, easily maintained vehicle that will reflect the beauty of our nation's capital. And they want one that will retain its appearance under hard usage over a long period of time.

The mock-up is an air-conditioned, brightly lighted, carpeted, 75-ft-long prototype for a car which will weigh less than 70,000 lb and be capable of 75 mph. And, thanks to aluminum's ease of fabrication, delivery of the mock-up was possible in spite of an extremely tight schedule.

To learn more about this versatile metal in the field of transportation, contact your nearest Alcoa sales office.

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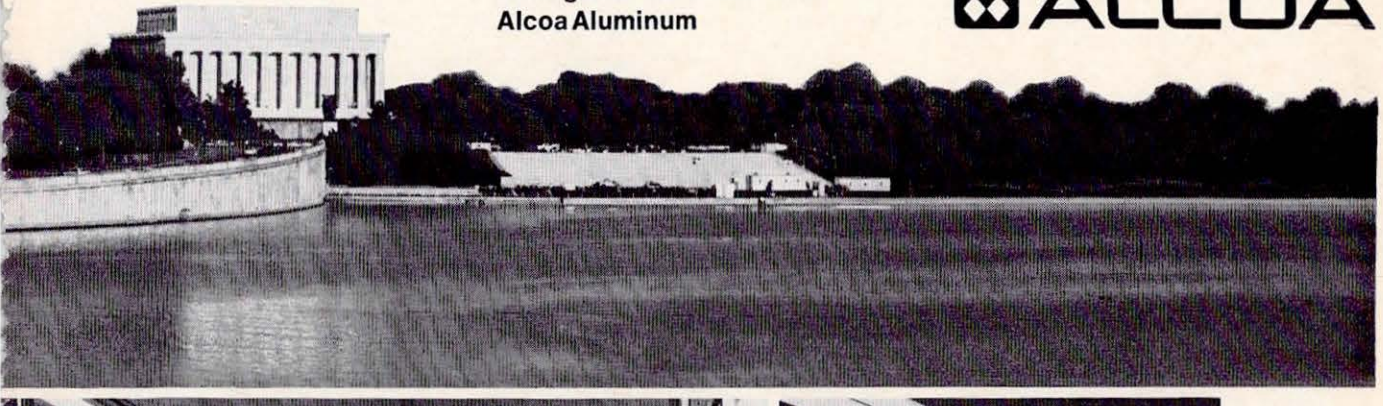

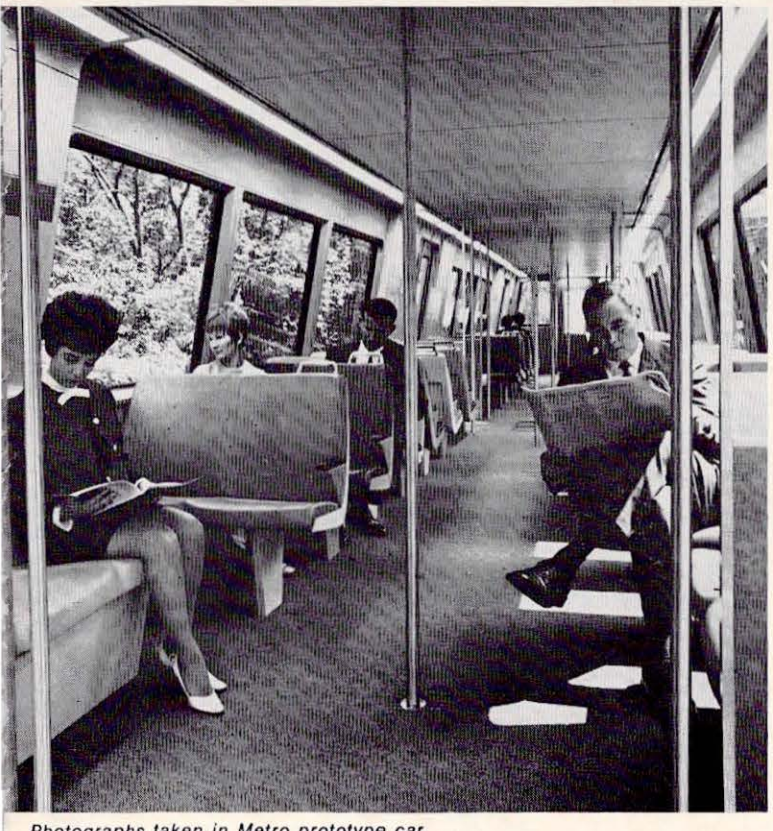

Photographs taken in Metro prototype car.

M
metro

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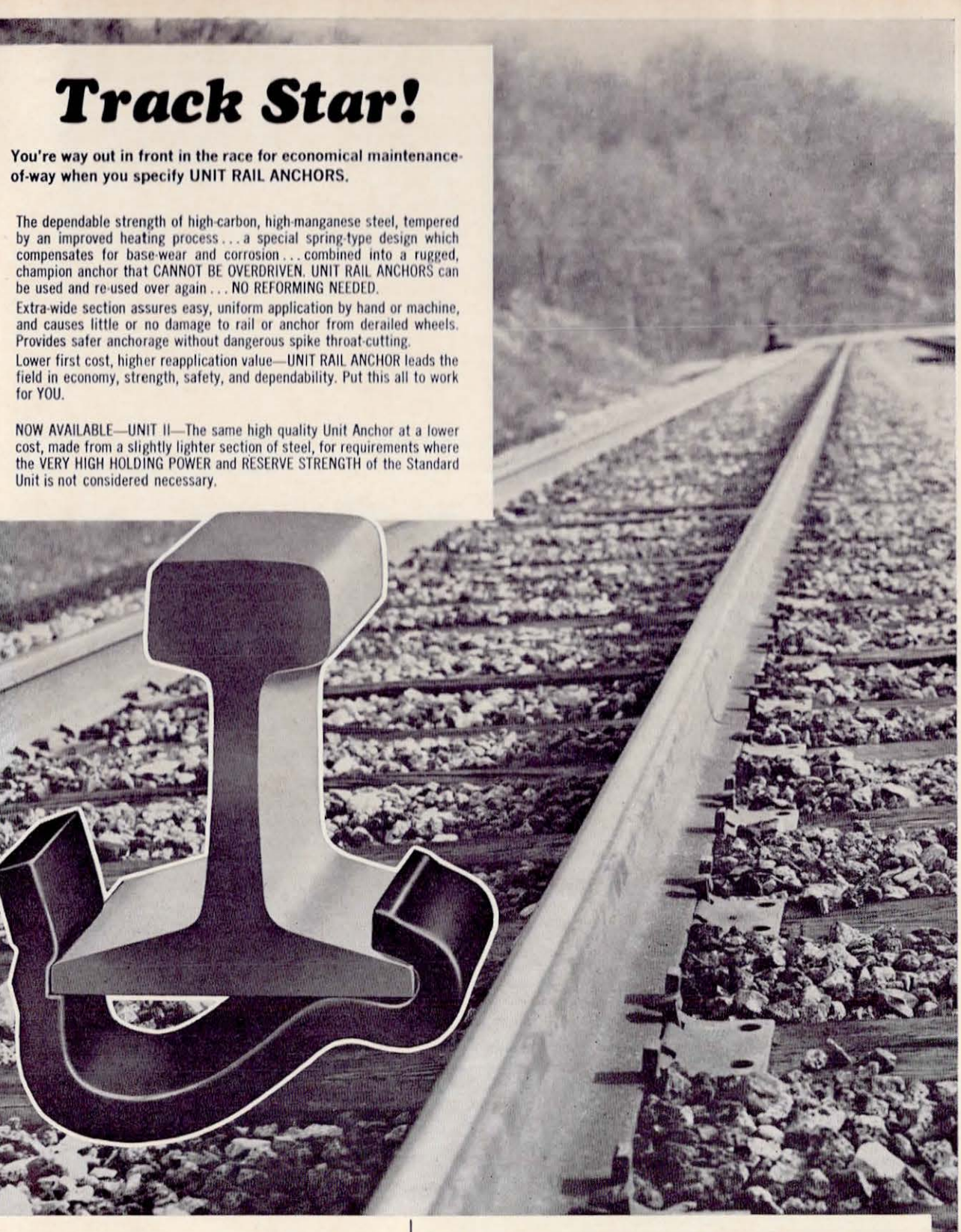

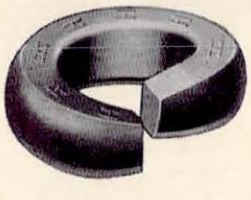

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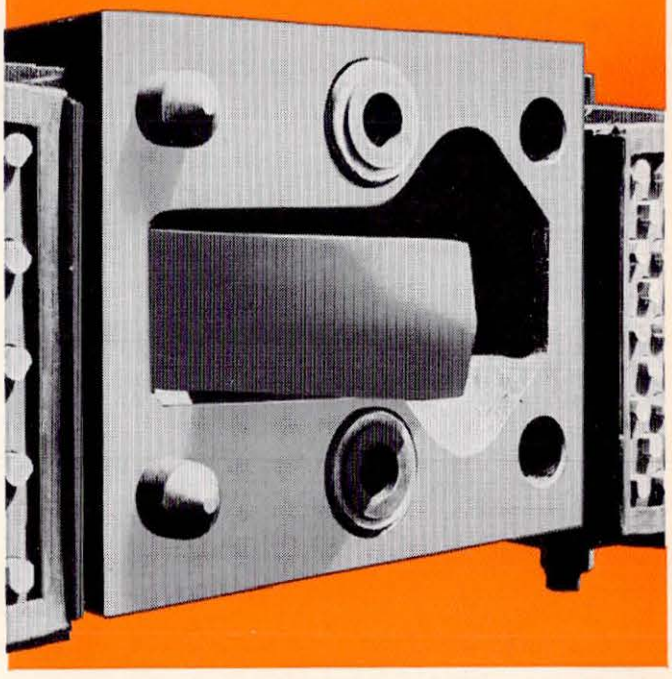
TRANSIT ROUNDUP

THE DAN RYAN COMES IN: Transportation Secretary John A. Volpe was overflowing with praise as he—along with Mayor Richard J. Daley, Illinois Governor Richard B. Ogilvie and U.S. Senators Charles Percy and Ralph Smith—made the opening of Chicago's newest rapid-transit line an event to remember. Showing a keen knowledge of Chicago-the-builder, Volpe observed: "They say Chicago is one of those places where the shortest distance between two points is always under construction. But that's good, because if ever a nation needed to replace its outworn facilities, this is one. . . . Everybody talks a lot about urban crisis and challenge, but the leadership of this city has mobilized a response that is equal to it." When the speechmaking was over, regular service began on this newest Chicago Transit Authority line, which serves the city's south side via the median strip of the Dan Ryan Expressway.

GIVE OR TAKE A BILLION: What are rail transit's cash (or credit) needs over the next decade? Those whose business it is to make such estimates have recently revised their figures—upward. The Bureau of Public Roads estimates that a total of $16.8 billion will be needed during the Seventies for rails—with $6.5 billion allocated to the expansion and improvement of existing systems, $3.6 billion for systems, and $1.2 billion for improvement of existing comtems. The Institute for Rapid Transit puts a $17.4-billion price tag on the coming decade. This includes $8.3 billion for new rapid transit systems, $7.9 billion for modernized systems, and $1.2 billion for improvement of existing commuter railroad systems. To this, the American Transit Association adds some $2.75 billion for buses and the costs involved with bus operations, for a grand total of more than $20 billion. (As the Federal share, President Nixon has proposed $10 billion over 12 years on a by-whim-of-Congress basis.)

JERSEY PRESSES ON: New Jersey's master plan for the rehabilitation and re-equipping of its northern suburban passenger lines has made significant advances since its initial voter approval a year ago. The transportation bond issue allocates $200 million for public transportation. An additional $125 million is expected in Federal funds. The New Jersey Department of Transportation and Penn Central are currently studying the capacity of Penn Station and its connecting tunnels to see if the Jersey Central can acquire direct access to Manhattan during peak travel times. An interim program has alleviated some of the most critical needs. This program has provided CNJ with 48 refurbished cars acquired from other roads (with two more to come). Thirteen locomotives have been bought and leased to CNJ. Sixty-five old CNJ cars are being rehabilitated at state expense. Penn Central, meanwhile, has received 30 high-speed Jersey Arrow cars out of a total order of 35; action on 45 more cars is pending. Pullman-Standard has received a contract for 105 locomotive-hauled aluminum coaches for Erie Lackawanna. Fifty three coaches have been purchased from Santa Fe for rehabilitation and assignment to carriers in the state. Scheduled for completion this fall are feasibility, engineering and cost studies relating to electrification of Erie Lackawanna lines. Equipment interchangeable with Penn Central is contemplated.

OLD PRO !!!



We say it respectfully. Old, because the Ohio Brass hook-type coupler was patented in 1906; pro, because O-B offers the rail and transit industries over 60 years of experience in coupler design. It's difficult to get more professional than that.

Some of the design innovations in O-B hook-type couplings over the years include the tightlock mechanism, automatic air line inter-connection, the self-centering device, pushbutton uncoupling, the patented energy release mechanism, and the inclusion of electrical couplers on the basic coupler assembly.

Transit systems such as Toronto's (using the coupler shown above) appreciate the minimum size and weight,strength, maintenance ease, and design simplicity of the O-B hook-type unit.

If you'd like further information on the O-B hook-type coupler, or any other O-B transit product, contact our district manager in your area. Or get in touch with us direct. 667-T

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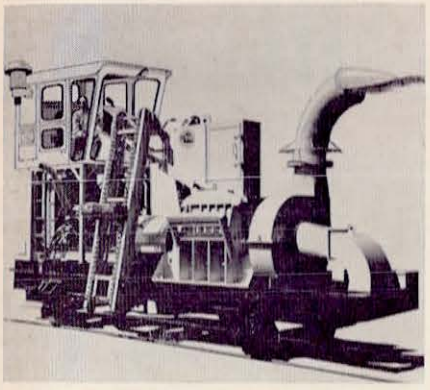
NEW PRODUCTS REPORT



Tie destroyer (RA-1)

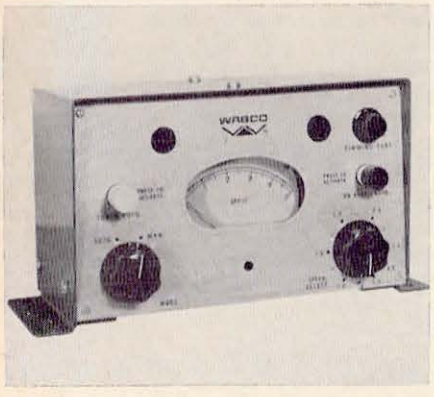
A machine, the Montgomery Tie Destroyer, has been developed for disposing of old ties removed from the track. It is an on-track, self-propelled machine with cutters designed for abrasive service and that will grind steel, such as spikes, "dead-heads," S-irons and embedded ballast. It is protected against damage from steel such as tie plates, by external shear bolts and internal shear pins. *Jacksonville Blow Pipe Co.*

Wheel loader (RA-2)

The recently introduced 930 Wheel Loader is said to combine several new concepts with quality-design features of the larger Cat-built wheel loaders. Articulation of 35 degrees to either side is said to give the 930 the versatility and maneuverability needed to spot loads in tight quarters. It has a turning radius of 18 feet 1½ inches while maintaining excellent stability with a 108-inch wheelbase. *Caterpillar Tractor Co.*

Bridge crane (RA-3)

The latest version of Kershaw's Bridge Crane enables bridge forces to replace ties, caps and stringers of open-deck trestles rapidly and economically. It has been completely redesigned for heavy lifting. Improvements include special valves for precision handling of timbers and more power so that it can handle an 800-lb concrete tie when grasped at its end at a reach of 24 ft, and a 4,000-lb concrete cap at a distance of 10 ft. *Kershaw Mfg. Co.*



Speed regulation system (RA-4)

Accurate control of slow speeds to plus or minus 0.1 mph over the range of 1 to 5 mph; electronic adjustment of locomotive throttle automatically, with accurate modulation of power between throttle settings; modular plug-in design for ease of maintenance; and a method of train modulation which eliminates need for special equipment on board helper units, feature the new low-speed locomotive regulation system designed primarily to improve "throughput" at freight classification yards. The system can also be used in other types of switching operations. It can be interfaced with the controls of most standard American-built diesel-electric locomotives which are equipped with an eight-step throttle control system and d-c excitation of the main generator. System components are designed so that applications can be made for single- or multiple-locomotive operation with minimum disruption of equipment and without any change to the original manual cab controls. *Westinghouse Air Brake Co.*

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John M. Butler
C&NW

Robert A. Sharp
C&NW

PEOPLE

CHICAGO & EASTERN ILLINOIS.—A. S. Welch named assistant superintendent, Dolton (Yard Center), Ill.

CHICAGO & NORTH WESTERN.—John M. Butler, vice president-accounting, elected vice president-finance.

Robert A. Sharp, Chicago terminal manager, appointed director-marketing planning.

W. G. Kranz named assistant general manager. **M. R. Long** appointed assistant general manager-Chicago Terminal District. **J. A. Zito** named superintendent, Central division, Mason City, Iowa. **O. W. Smith** and **E. F. Mahuta** named assistant superintendents, Wisconsin division, Milwaukee, and Mason City, respectively. Mr. Mahuta's successor as trainmaster, Iowa division, Clinton, Iowa, is **E. E. Hildebrandt. D. T. Warning** named trainmaster, Galena division, West Chicago, Ill. **L. Price, Jr.** appointed trainmaster traveling engineer, Wisconsin division, Crystal Lake, Ill.

GREAT NORTHERN.—J. D. Gabiou appointed trainmaster, Shelby, Mont., succeeding **J. M. McFarland,** transferred to Seattle (RA Sept. 15/22, p. 91).

TRANSIT

Dave Baxley has joined the **Metropolitan Transportation Authority,** New York, as public information officer. Mr. Baxley was press relations manager for Pan American at Kennedy Airport for a number of years and recently served on Pan Am's headquarters public relations staff in the Pan Am Building, New York.

Walter Kudlick has been named by **Parsons, Brinckerhoff, Quade & Douglas** to head expanded operations in the New England region at Boston, Mass. Mr. Kudlick has spent the last three years managing the company's office in Caracas, Venezuela, where he directed the firm's participation in a land use/transportation study for the city, as well as the planning of its rapid transit system. A specialist in mass transportation, Mr. Kudlick has worked on transportation projects in Hamilton, Ont., Can.; Baltimore, Md.; Oslo, Norway; and Liverpool and Leeds, England.

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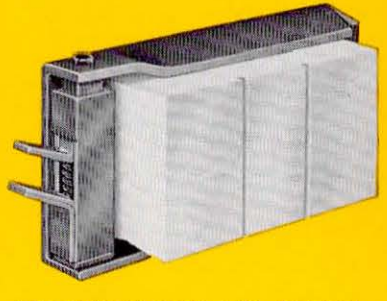

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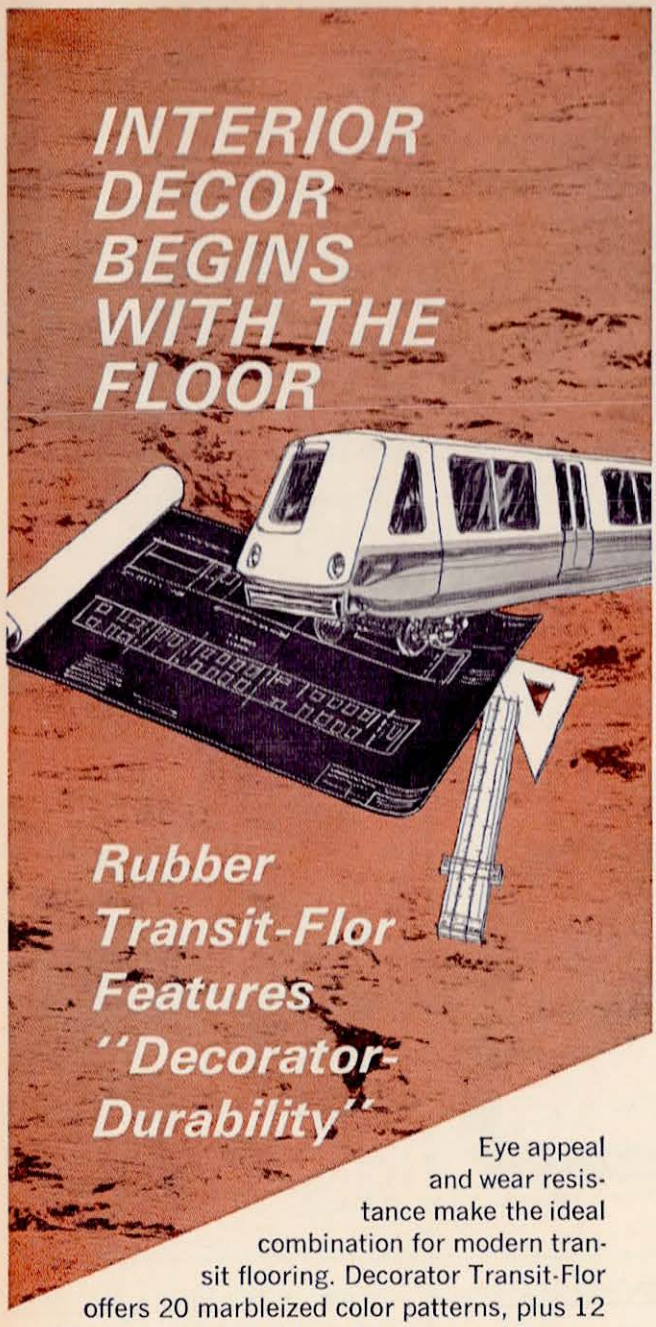

Eye appeal and wear resistance make the ideal combination for modern transit flooring. Decorator Transit-Flor offers 20 marbleized color patterns, plus 12 terrazzo styles, to blend or contrast in new or existing interiors. Low-maintenance rubber stands up to grueling wear, foul weather . . . and even supplies best resistance to cigarette scorch. Rubber's natural resilience provides underfoot safety . . . in double-grooved rib or smooth surface flooring. Step treads come in blending or matching colors.

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Circle 21 on coupon page 38

LETTERS

Metroliner fares

Philadelphia

To the Editor:

It is evident that Henry R. Korman of Longview, Wash., is not familiar with Penn Central's Metroliner fares, as indicated in his letter to the editor in the Sept. 15/22 issue of Railway Age.

The Metroliner coach fare between New York City and Washington, D.C., ($15.75) is $4.20 less than that charged on the New York-Washington air shuttle.

U. William Cunitz
Director-Public Relations
Penn Central

"The only trouble was . . ."

Hammond, La.

To the Editor:

My wife and I, en route to the Denver convention of the National Railway Historical Society, recently decided to try the "Denver Zephyr" on our trip westward. We boarded the "Zephyr" in Chicago on Sept. 2. The train crews were most courteous, the equipment was clean inside and out, the food in the diner was perfect and the prices much more reasonable than other lines we traveled on. The only trouble was the train wasn't even half full.

A number of NRHS members inspected the "California Zephyr" in the Denver Union Station the night of Sept. 7 on return from our steam trip over the UP and found conditions the same as on the "Denver Zephyr."

In our opinion, if the Burlington has to eliminate any more passenger trains in the future, it certainly isn't because they aren't trying to hold the passengers with good, clean equipment. Oh yes—we maintained the schedule through the run, arriving at Denver on time.

C. W. Witbeck, President
Southeast Louisiana Chapter
National Railway Historical Society

Terminal procedures

St. Louis, Mo.

To the Editor:

It was with particular interest that I noted the article in the June 30 issue relative to activities of some of the carriers named in improving terminal procedures [p. 27].

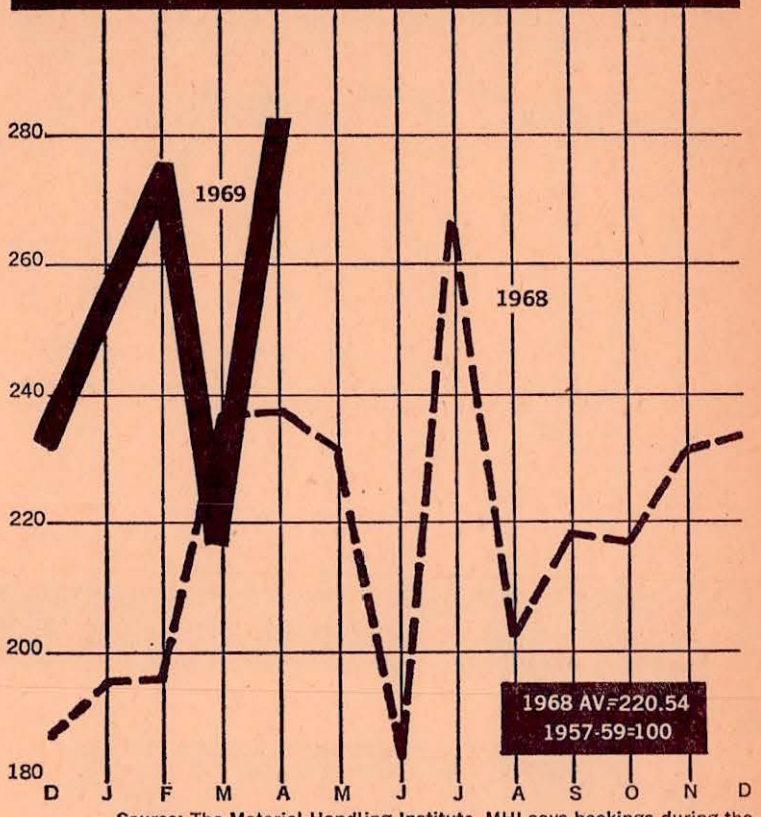
As a carrier serving the St. Louis terminal and operating such famous freight trains as the "Blue Streak Merchandise" in conjunction with the Southern Pacific to the far west, we feel we are very much a part of the activities in the St. Louis area. Noting comments as to the operations of other lines, I thought you would be interested to recall that in September 1966 the Cotton Belt in conjunction with the then New York Central System inaugurated a daily run-through solid train operation between Indianapolis, Ind., and Pine Bluff, Ark., without break-up in the St. Louis terminal.

I believe we were the pioneer, or at least one of the pioneers, in this concept. It has been extended not only by ourselves with additional run-through trains since that time, but by inaugurating the concept of blocking such train at Pine Bluff so that it contains a number of blocks. This enables our Eastern connections to move through the St. Louis terminal without necessity of break-up.

E. N. Brown
General Traffic Manager
St. Louis Southwestern

MATERIAL HANDLING EQUIPMENT BOOKINGS

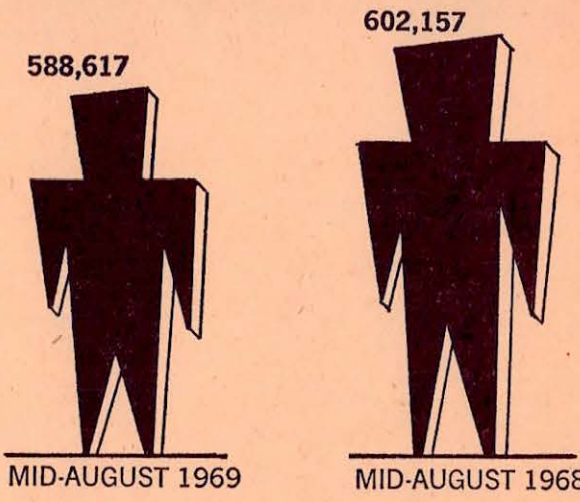
(seasonally adjusted)



Source: The Material Handling Institute. MHI says bookings during the first half of 1969 totaled $809,873,018, the best midyear figure ever recorded by the industry.

RAILROAD EMPLOYMENT

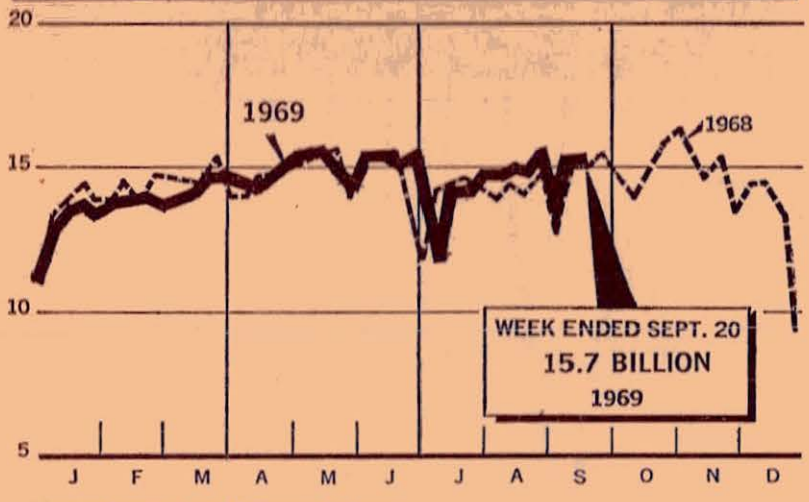
(CLASS I LINE-HAUL RAILROADS)



Source: Bureau of Accounts, ICC.

RAIL FREIGHT TRAFFIC TRENDS

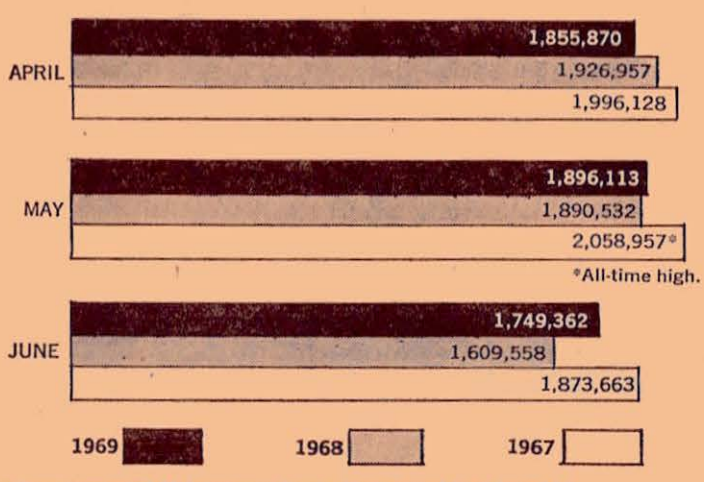
BILLION TON-MILES (Estimated)



Source: Association of American Railroads

MILES PER HOTBOX SETOFF

(SECOND QUARTER 1969, 1968 AND 1967)



Source: Operations and Maintenance Dept., Mechanical Division, AAR.

Current Statistics

Net Income, Class I roads	
Six months, 1969	$265,000,000
Six months, 1968	278,000,000
New freight cars on order	
Aug. 1, 1969	51,233
Aug. 1, 1968	16,943
New freight cars delivered	
7 mos., 1969	37,697
7 mos., 1968	34,858
Serviceable cars	
Aug. 1, 1969	1,365,892
Aug. 1, 1968	1,393,000

MARKET OUTLOOK

CARLOADINGS

Loadings of revenue freight in the week ended Sept. 27 totaled 593,464 cars, the Association of American Railroads announced on Oct. 2. This was an increase of 3,546 cars, or 0.6%, compared with the previous week; an increase of 86 cars, or 0.01%, compared with the corresponding week last year; and an increase of 7,791 cars, or 1.3%, compared with the equivalent 1967 week. Ton-miles generated by carloadings in the week ended Sept. 27 are estimated at 15.8 billion, an increase of 4.2% above the corresponding week of 1968, and 6.8% above the 1967 week.

REVENUE FREIGHT CARLOADINGS

Commodity	Sept. 20 week	Preceding week	Per cent change
Grain	24,123	26,418	— 8.7
Farm products	15,459	12,892	+19.9
Metallic ores	57,961	58,530	— 1.0
Coal	106,476	106,341	+ 0.1
Crushed stone, gravel & sand	34,567	34,290	+ 0.8
Nonmetallic minerals	11,268	11,298	— 0.3
Grain mill products	21,613	21,635	— 0.1
Food & kindred products	25,892	26,351	— 1.7
Primary forest products	25,527	25,582	— 0.2
Lumber & wood products (except furniture)	15,816	16,377	— 3.4
Pulp, paper & allied products	24,494	25,520	— 4.0
Chemicals & allied products	28,276	27,338	+ 3.4
Petroleum products	11,905	11,789	+ 1.0
Stone, clay & glass products	23,711	22,839	+ 3.8
Coke	8,701	8,579	+ 1.4
Metals & products	28,404	28,009	+ 1.4
Motor vehicles & equipment	25,793	24,984	+ 3.2
Waste & scrap materials	16,028	15,922	+ 0.7
Forwarder & shipper assn. traffic	8,345	8,030	+ 3.9
All other carloads	73,825	72,263	+ 2.2
LCL traffic	1,734	1,905	— 9.0
Total cars loaded	589,918	586,892	+ 0.5

CUMULATIVE TOTAL, 38 WEEKS	1969	1968	1967
	20,446,396	20,583,513	20,393,626

PIGGYBACK CARLOADINGS

U. S. piggyback loadings for the week ended Sept. 20 totaled 27,147 cars, carrying 46,016 trailers, compared with 28,937 cars, carrying 46,499 trailers, in the corresponding 1968 week. Loadings for 1969 up to Sept. 20 totaled 974,921 cars, carrying 1,600,861 trailers, compared with 966,628 cars, carrying 1,470,947 trailers, in the corresponding period of 1968.

IN CANADA

Cumulative	Revenue Cars Loaded	Total cars Rec'd from Connections
Sept. 7, 1969	2,439,000	833,470
Sept. 7, 1968	2,541,249	842,917

NEW FACILITIES

● *Canadian National.*—Placed an order with the Signal & Communications Division of WABCO for supply of CTC equipment along the Dundas subdivision, 33 miles of double track from Hamilton West to Paris West, Ont. Control will be from a TTC console at London, Ont.

● *Northern Pacific.*—Ordered the installation of five KarTrak ACI systems from the Commercial Electronics Division of Sylvania Electric Products, Inc. The contract calls for the installation of three KarTrak systems in the Pasco, Washington area, and one each in Northtown and Park Junction, both in Minnesota. The systems will include trackside scanners, decoders, message generators and computer interface equipment.

● *Texas & Pacific.*—Placed an order with the Signal & Communications Division of WABCO for an automatic freight classification yard system for Lancaster Yard, Fort Worth, Tex.

TRANSIT

● *Cleveland Transit System.*—Ordered 10 new Airporter cars from Pullman-Standard, at a cost of $251,950 each, to augment 20 similar cars now serving Cleveland's airport-to-center-city transit extension. Delivery is scheduled for August 1970. Republic Steel Corp. will supply stainless steel for the body sheathing. General Electric's Transit Systems Department will supply propulsion and braking systems. Need for the additional cars developed, said CTS General Manager E. C. Krueger, when the number of riders carried to and from Hopkins International Airport far exceeded the expectations of consultants. The number of trains making the run over the 4.1-mile extension has doubled since operations began nine months ago. Of the more than 13,000 people who arrive or depart from the airport via scheduled airlines each day, more than 2,000 ride the CTS Rapid, said Krueger.

FOREIGN

● *Brazil.*—An Export-Import Bank credit of $5.9 million has been extended to Rede Ferroviaria Federal to help finance U.S. purchases of components for 80 diesel locomotives and related equipment, spare parts and services. Total cost of the program will be $20 million. U.S. purchases will total an estimated $9.5 million. General Electric, supplier of the U.S. equipment, will participate in Eximbank's loan to the extent of 10%, or $593,000. A syndicate of U.S. commercial banks will finance the balance of U.S. costs of $3,562,000 and local costs equivalent to $10.5 million. The U.S. and Brazilian components for the locomotives will be assembled in Brazil by General Electric, S.A.

YOU OUGHT TO KNOW

Seatrain Lines begins service to Hawaii

Seatrain Lines is operating in the Pacific Ocean for the first time — with the containerships "Transoneida" and "Transchamplain" providing weekly service between Oakland, Calif., and Hawaii. Operations are being handled by a Seatrain affiliate, Seatrain-California. And, though the new service just began in late September, Seatrain is already looking west: The start-up of Hawaii service, says President Howard M. Pack, "opens the possibility of the use of the new Hawaiian terminal as a base for South Pacific operations." Each containership in the Hawaii service will handle 435 of Seatrain's 27-foot containers, according to Seatrain spokesmen.

Ex-AP reporter joins RPI as p.r. chief

John Koenig, Jr., a former reporter for the Associated Press, joined the Railway Progress Institute in Washington last week as director of public affairs. He succeeds Frank Holeman, who resigned to become Washington manager of the Tire Industry Safety Council. Koenig, 53, worked for the AP in Harrisburg, Pa., Philadelphia and Washington from 1949 to 1967. Since 1967 he has been in the public relations department of the National Coal Policy Conference.

Southern plans to acquire TAG

The Southern Railway has filed an application with the ICC for permission to acquire control of the Tennessee, Alabama & Georgia by issuing Southern common stock in exchange for TAG's outstanding capital stock. The basis of the exchange is to be three-tenths of Southern common stock for each share of TAG stock.

C&O/B&O offer plan for moving the family auto

When a businessman is transferred from one coast to another, he often elects to fly his family to their new home. But what about the family automobile? The solution now suggested by the Chesapeake & Ohio/Baltimore & Ohio is Auto-Trans—a new plan for transporting the family auto by rail. Auto-Trans will carry automobiles in tri- and bi-level auto rack cars on a coast-to-coast route arranged in cooperation with the Southern Pacific. Initially, the service will be offered in the East at New York, Philadelphia, Baltimore and Washington, to the West Coast cities of Los Angeles and San Francisco. The carriers emphasize that the new service is freight-oriented and entirely different from the "Chessie-Take-Your-Auto" plan which C&O/B&O operated for a time, as a feature of passenger service, in which auto owners also travelled by train.

Dual-purpose computer system being developed

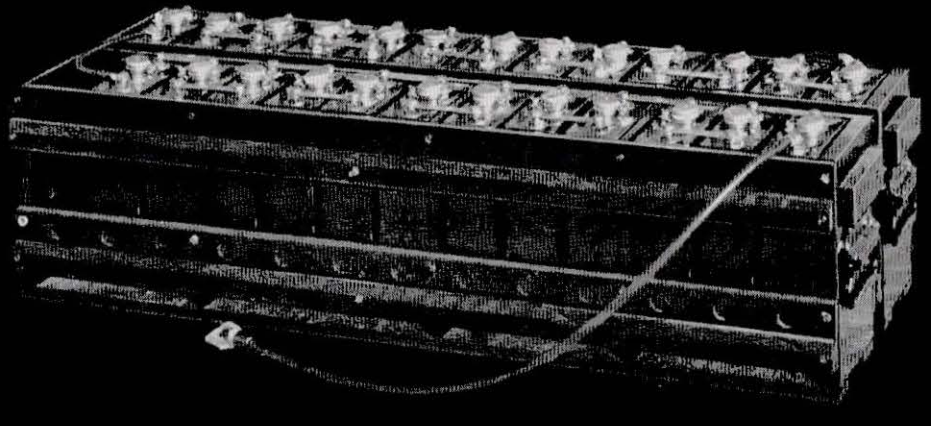
Under contract with Southern Pacific, McDonnell Automation is developing a computer system which will (1) permit rapid route-selection for high/wide/heavy loads, and (2) aid rail management in setting priorities for certain types of new construction. W. R. Vickroy, marketing manager for McDonnell Automation, says the bridge analysis and heavy-load clearance parts of the system are already in use and will be available to all railroads. Data-bank information on the structural adequacy of bridges, he indicated, can be drawn on as an aid in evaluation of construction needs.

MLW-Worthington acquires Alco Products

The locomotive design concern of Alco Products, Inc., has been acquired by MLW-Worthington, Ltd. of Montreal, Canada. While price of the acquisition was not disclosed, MLW-Worthington says it will continue the design and development of the Alco line of locomotives for worldwide service. Design and development of locomotives, passenger and freight cars, and rapid transit systems will be handled by MLW-Worthington's Rail and Transit Development Division. Key Alco design engineers have been added to this division.

The battery and ½

The nickel-iron battery rides again.



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Computers simplify inventory control

(Continued from page 30)
month, six-month, or one-year maximum intervals.

In the new system, only two preprinted forms are used—the purchase order and the price inquiry. All the rest of the hard-copy forms and letters are produced on blank paper stock used in the 1050. When the computer is to transmit either purchase orders or price inquiries to purchasing, a clerk in the data-processing center telephones the terminal operator to alert her to place the proper paper stock in the 1050 terminal. Purchase orders are often transmitted in the late afternoon hours so they are ready for buyers' attention first thing the next morning.

● **New reports available.** A computerized inventory control system makes possible the generation of reports, both special and routine, that either were not possible or were not practical to produce with the manual system. For example, an ABC report lists the annual dollar expenditures per item. "A" represents items with a yearly purchase value over $500, "B" is for items ranging from $100 to $500 and "C" is for items running under $100. When performed manually, this report took so long to prepare that it was out-of-date before it was completed. This ABC report is a list beginning with the largest expenditure at the top. The computer produces it in about one-half hour, and it will be prepared on a monthly or periodic basis as required.

Another computer-generated report covers scheduled activity or usage of the inventory. Known as MS-2, this monthly report shows usage by items and total money involved. A special report that is computer-generated concerns slow-moving items. This alerts purchasing to inactivity and possible obsolescence, to initiate action to review quantities carried in stock and ordered.

● **Over-and-under.** Two computer-generated reports concern over-and-under shipments of materials or supplies to stores locations. When stores sends the received quantity information to the computer following purchasing, it compares this data with the quantity requested on the purchase order. If there's an overage, it sends a report to stores indicating the quantity to be returned. After receiving an approval from stores, the computer produces a letter, printed out on the purchasing terminal in Pittsburgh that is directed to the vendor, indicating the overage. Instructions for return of the material are requested. Also, the storekeeper alerts the accounting department to the returns.

The system works in reverse if an under-delivery is received at stores. The computer notifies stores that the reported received quantity does not match the purchase order. It prepares a letter to be sent by purchasing to the vendor requesting a completion to the order. In all cases of letter preparation by the computer, the letters are handled by buyers, the purchasing agent or the director of purchases and stores, so that human intervention is likely to prevent the mailing of any unnecessary or incorrect letters.

In setting up this new system, the computer produced bin labels for the stores locations. Labels carry the name, code, and classification number of the items. Master and road catalogs, for use in various material-consuming centers, were computer-produced at the same time.

Also computer-produced is a vendor catalog that includes information on sales offices, where to order material, where to pay bills, where material is shipped from, and such internal information as to what railroad receives the material from the vendor. ■

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VIEWPOINT

What is really at stake

The fate of the 500 passenger trains that still ply between our cities is no inconsequential matter. But that is only the top of the iceberg that is now surfacing in Washington.

The underlying issue, and one of surpassing importance to the nation, is what happens to the 10,000 freight trains that quietly and without railfanfare go about their daily business of hauling 40% of America's freight package.

Lou Menk knows this. During Senate hearings on a bill that would indemnify railroads against losses on passenger trains they are required to operate "in the public interest," Northern Pacific's president laid it on the line. Unless Congress acts, "the nation's passenger trains will disappear or the railroad industry will be pushed to the verge of financial disaster and unable to provide essential freight service," warned Menk.

Stuart Saunders knows this. "The constant drain of Penn Central's passenger deficit on cash and other resources severely restricts our ability to meet the rising demands of the shipping public for improved freight service and expensive specialized freight equipment," Saunders told the hearing.

Federal Railroad Administrator Reginald Whitman knows this. "The drain on railroad finances is severe at a time when available capital is very scarce and when deferred maintenance of roadbed, a vital factor in railroad safety, is building sharply," said Whitman.

Members of the Senate Commerce subcommittee on surface transportation know all this—if they were listening. Railroadmen—and all interested bystanders—should make certain that all members of Congress know it, too.

The feds steal a march

Some time ago, Railway Age, a long-time advocate of intermodal transportation companies under single ownership, proposed that a "test-tube experiment" be set up to check out the idea. Now it seems that we are going to get just that—though not quite in the manner proposed.

The Department of Transportation is studying the feasibility of a rail-highway transportation corridor in Alaska. That much has been reported. But DOT has a broader vision than the initial press release indicated. The transcript of Secretary John A. Volpe's recent Anchorage speech has now become available. This is what he said:

"We are thinking not only in terms of extending the Alaska Railroad, or the highway—we are looking to utilize the most advanced technology and the best transportation planning to provide a truly integrated and a balanced transportation system. The corridor would include not only a tracked bed and highways, but airport facilities at regular intervals, and communications and transmission lines. It would also include connections with potential river transportation."

Good idea, Mr. Secretary. Why not let private enterprise have a go at it, too? In the South 48?

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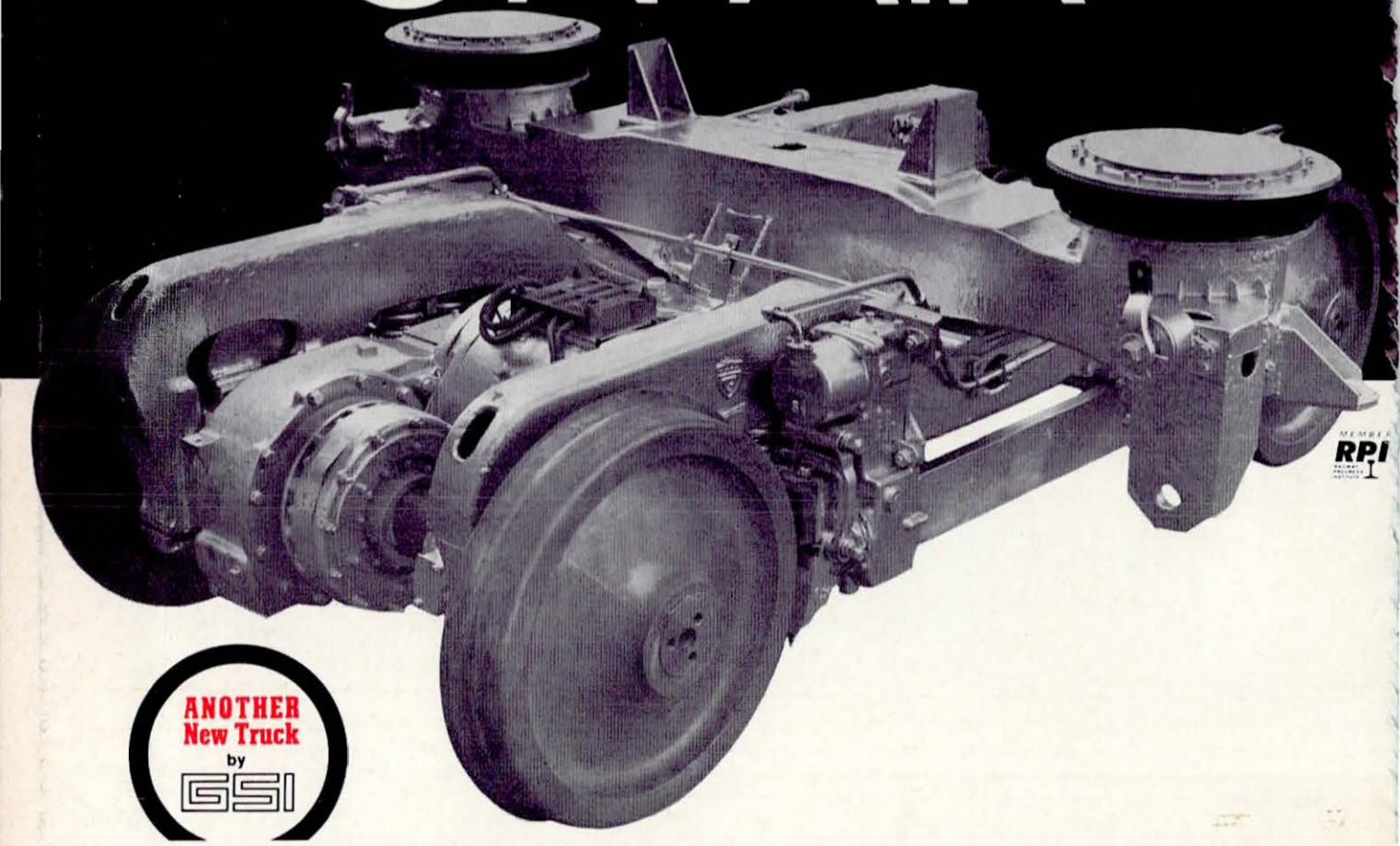

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